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ABSTRACT

One of a series of eleven curriculum manuals which cover the four transportation topics of public transportation, transportation and the environment, transportation safety, and bicycles for elementary, secondary, and adult levels, this manual covers bicycling for grades 9-12. It contains forty-four learning activities grouped into eight mini-units. Each mini-unit consists of a lesson plan component and an individual learning activities component. The first mini-unit provides a survey of issues related to bicycles; the rest are as follows: identifying and promoting safe bicycle practices, investigating why many people ride dangerously, studying how to buy a bicycle, learning to maintain a bicycle, identifying when and how to seek redress of grievances, identifying and promoting bicycle facilities, and engaging in bicycle projects. A final section offers additional activities that may be used to evaluate or supplement evaluation of an activity or mini-unit. Also included are references for further study resources, suggestions for incorporating the units into other subject areas, and masters for reproduction of role profiles, game boards, maps, and other distributable materials. (A curriculum guide, CE 014 028, is also available for use with the manuals.) (TA)

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PEDAL ON!

MINI-UNITS AND LEARNING ACTIVITIES ON BICYCLING

for

grades 9 through 12

by

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U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
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FOREWORD

TEACHING TRANSPORTATION: AN OVERVIEW

> Nearly everything Americans do, from mailing a postcard to walking on the moon, depends on transportation. Transportation is essential for the supply of food, clothing and shelter, for national defense and employment, for education and recreation, for the international exchange of goods and services.*

While every American is provided with the necessities and amenities of modern life through an intricate freight-carrying network, we think of transportation most readily in terms of moving people, not products, and for good reason. Millions of us commute to work every day by car, bus, train, or subway. Moreover, 21 million youngsters travel on school buses every day. Americans use a variety of transportation modes for other purposes, including shopping, recreation, tourism, and moving. The average family changes residence once every five years and makes use of one of the many thousands of for-hire companies that provide domestic surface transportation. In addition, Americans travel more than 1.7 trillion miles by passenger cars or trucks every year, while AMTRAK's 250 trains cover 26,000 miles and service 484 communities with more than 7 million people annually using the New York to Washington run alone. There are also 950 intercity bus companies whose 20,600 vehicles travel 1.1 billion miles each year, and commercial aircraft transport over 210 million passengers annually.

Americans are also highly dependent on transportation services for recreation purposes, too. Not only are vehicles used to get to places of entertainment, many vehicles are themselves forms of recreation. For example, there are approximately 7.3 million registered boats in the country, not counting rowboats and canoes. Seven and one-half million motor homes, truck campers, and travel and camping trailers are on the roads. Snowmobiles, dune buggies, and home-built vehicles have become widespread in the past few years.

Americans also relax on two-wheeled vehicles: there are 100 million bicycles and nearly five million motorcycles in the country,

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*John Burby. *The Great American Motion Sickness*. (Little, Brown and Co.: Boston: 1971), page 3.

many of which are used for commuting as well as recreation.

The most frequently used form of transportation in the nation, however, is walking. We sometimes forget that pedestrians utilize the single most common mode of travel.

Finally, the overwhelming importance of transportation in our lives must be assessed not only in terms of movement of goods and people but also in relation to the millions of jobs transportation provides. Transportation facilities and vehicles require manufacturers, builders, operators, and mechanics, while also creating thousands of employment opportunities in related industries, from foundries that produce steel for vehicles to insurance companies that provide automobile insurance to health care systems that treat travel-related injuries.

For all these reasons it is important for students to become aware of transportation as it affects their lives, to learn to be wise purchasers and users of transportation goods and services, and to develop skills to promote constructive use and appropriate expansion of all forms of transportation in their communities and beyond.

In particular, consumers should become informed about (1) improving and using public transportation, (2) harmonizing the environment and transportation, (3) understanding transportation safety, and (4) perceiving the importance of bicycling. By examining these four major topics, students will learn, for example, to identify the best methods for commuting to school and work; to travel, when possible, in ways which minimize adverse transportation effects on the environment; and to purchase and use transportation vehicles and facilities with maximum safety.

CURRICULUM MATERIALS AVAILABLE

This Manual is one in a series of volumes that treat at different grade levels the four transportation topics of Public Transportation, Transportation and the Environment, Transportation Safety, and Bicycles. These volumes were developed by Abt Associates Inc. under contract to the U.S. Department of Transportation, Office of Consumer Affairs. The following 11 Manuals and the Curriculum Guide on transportation consumer education are currently available:

- Travel On! Mini-units and Learning Activities on Transportation for Grades K-3 (Safety, Bicycles, Environment, Mass Transit)
- Travel On! Mini-units and Learning Activities on Transportation for Grades 4-6 (Safety, Bicycles, Environment, Mass Transit)
- Transportation Consumer Education for Adults: Mini-units and Learning Activities (Safety, Bicycles, Environment, Mass Transit)
- Pedal On! Mini-units and Learning Activities on Bicycling for Grades 6-9
- Pedal On! Mini-units and Learning Activities on Bicycling for Grades 9-12
- Ride On! Mini-units and Learning Activities on Public Transportation for Grades 6-9
- Ride On! Mini-units and Learning Activities on Public Transportation for Grades 9-12
- Getting There! Mini-units and Learning Activities on Transportation Safety for Grades 6-9
- Getting There! Mini-units and Learning Activities on Transportation Safety for Grades 9-12
- Transportation and the Environment in Harmony: Mini-units and Learning Activities for Grades 6-9
- Transportation and the Environment in Harmony: Mini-units and Learning Activities for Grades 9-12
- Transportation Consumer Education: A Curriculum Guide for Grades K-12 and Adult

These volumes may be ordered from

Abt Publications
55 Wheeler Street
Cambridge, Massachusetts 02138

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The United States Coast Guard

The Federal Aviation Administration (FAA)

The Federal Highway Administration (FHWA)

The Office of Environmental Affairs in the U.S. Department of Transportation

The United States Coast Guard

The Urban Mass Transportation Administration (UMTA)

Many individuals within these agencies were very helpful in pointing out biases in the materials, errors of fact, and pedagogical weaknesses.

Despite the considerable assistance from these sources, only the authors are in any way responsible for errors, approaches, and biases in the final product.

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INTRODUCTION

WHAT'S IN THE MANUAL

Pedal On! contains 44 learning activities grouped into eight mini-units. Each unit has two components:

1. *A lesson plan* provides a suggested day-by-day sequence of learning activities and objectives.
2. *Individual learning activities* describe in detail how to implement the exercises suggested in the lesson plan.

Six spirit masters are also provided at the end of the Manual for use with six different activities.

The first mini-unit provides a survey of issues related to bicycles, while the rest focus on a specific bicycling issue. The eight activities in the survey mini-unit all reappear in subsequent units. Brief descriptions of all the activities in the Manual are provided on pages 14 and 15.

A final section of activities is called Assessment Activities. This section offers evaluation activities that can be used to evaluate or supplement the evaluation of an activity or of an entire mini-unit.

Also included at the end of the volume is a Bibliography of suggested teacher and student materials.

HOW TO USE THE MANUAL

This Manual is designed as a resource volume of activities and background materials to be used in ways compatible with your needs and those of your students.

The mini-units and individual learning activities may be integrated into your curriculum at many points and to meet many purposes.

- In *consumer education and home economics*, the activities find a natural home in view of their treatment of bicycle issues from the perspective of the consumer.
- In *social studies*, the activities enhance learning about one's community. They aid in understanding the importance of citizen participation in government, and they broaden the study of transportation itself.

- *Health and safety units and physical education* classes are obvious points of entree because of the Manual's emphasis on bicycle safety.

- *Language arts* skills are integral to all the mini-units, since the activities are designed to develop and reinforce students' capacities to listen, speak, write, observe, and analyze.

You will find that the introduction to each mini-unit sums up the rationale for teaching that topic in your classroom. After reading these mini-unit instructions, you will have the background for deciding which mini-unit or mini-units you will teach. In examining the mini-units, you should feel free to make substitutions or deletions in them and in the learning activities whenever this is necessary to meet your teaching objectives.

Here are several methods for adapting the mini-units and learning activities to teach transportation and the environment in your classroom:

You can read the lesson plans for all mini-units and *select one or more lesson plans* to integrate into your course. Having made your selection, read the detailed activity descriptions that follow the lesson plans for specific instructions on implementing the activities in the mini-unit or units you have chosen. This method of using the Manual is most appropriate if you wish to concentrate in some depth on one or more specific aspects of bicycles.

If you prefer to provide your students with a survey of issues related to bicycles touching on several aspects of the field, you can *implement the first mini-unit*, which provides just this type of overview. For your own information, you may wish to skim the lesson plans of the other mini-units for additional materials that will enrich your survey presentation.

You can also *develop your own mini-unit*, consisting of activities that you select from several mini-units in the Manual.* If you wish to do this, read the capsule descriptions of each activity provided on the chart on the following pages. This chart will show you, at a glance, the teaching method and content of each learning activity offered in the Manual.

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*You can also have your students leaf through the activities and select ones they would like to pursue individually or in small study groups.

MINI-UNITS AND ACTIVITIES

Activity #	*Activity Description*	*Class Time (periods)*
	Mini-unit 1 Surveying bicycle issues	
1	Students discuss why adults, teenagers, and children buy and ride bicycles and the advantages and disadvantages of bicycling.	1-1½
2	The class discusses bicycle safety.	½-1
3	Students discuss what bicycle characteristics purchasers should consider when deciding what bike to buy.	½-1
4	Students discuss embarrassment at carefully examining a bicycle for defects and characteristics before purchasing it.	½-1
5	Students role-play scenarios in which a consumer complains to a salesperson or mechanic.	1
6	Students interview bike riders on common bicycle malfunctions they have experienced and what kind of maintenance they perform on their bikes to prevent breakdowns.	2-4
7	A class discussion is held on existing and needed bicycle facilities, such as bikeways and parking areas, and how to plan and advocate them.	1½-2
8	Students obtain a map of their community and plot and publicize bicycle trails for recreation and commuter transportation.	3-5
	Mini-unit 2 Identifying and promoting safe bicycling practices	
9	Students take a poll on their experiences with bicycles.	½-1
10	The class discusses bicycle safety.	½-1
11	Students engage in scientific experiments that illustrate bicycle safety concepts.	½-1
12	Students discuss what restrictions they would set for their children on riding bicycles.	1
	Mini-unit 3 Investigating why many people ride dangerously	
13	Students discuss why those people who ride unsafely continue to do so even when they know it is very dangerous.	1
14	Students explore ways to cope with pressures to ride recklessly by responding to hypothetical letters from students and adults in situations of conflict about bicycling.	1
15	Students discuss why people exert pressure on others to ride safely or unsafely.	1-1½
	Mini-unit 4 Studying how to buy a bicycle	
16	Students discuss what bicycle characteristics purchasers should consider when deciding what bike to buy.	½-1
17	Students role-play scenarios involving bicycle purchasers and salespeople.	1
18	Students discuss embarrassment at carefully examining a bicycle for defects and characteristics before purchasing it.	½-1
19	Students analyze bicycle warranties and sales agreements.	2-3
20	Students role-play scenes in which children try to persuade their parents to buy a bicycle for them.	1-1½
	Mini-unit 5 Learning to maintain a bicycle	
21	Students play a card game that requires them to identify the parts of a bicycle.	½-1
22	Class discusses maintaining a bicycle.	½-1
23	Students discuss methods for preventing bicycle theft.	½-1
24	Students perform basic maintenance tasks on a bicycle in class.	1
25	Students interview bike riders on common bicycle malfunctions they have experienced and what kind of maintenance they perform on their bikes to prevent breakdowns.	2-4

MINI-UNITS AND ACTIVITIES (CONTD.)

Activity #	*Activity Description*	*Class Time (periods)*
	Mini-unit 6 **Identifying when and how to seek redress of grievances**	
26	A class discussion is held on reasons for seeking redress of grievances, and how this should be done.	1½-2½
27	Students role-play scenarios in which a consumer complains to a salesperson or mechanic.	1
28	Students practice writing letters of complaint concerning grievances they have about bicycle purchase or repair.	1
29	Students poll bicyclists on complaints about their bicycles and what, if anything, they did about their grievances.	2-4½
	Mini-unit 7 **Identifying and promoting bicycle facilities**	
30	A class discussion is held on existing and needed bicycle facilities, such as bikeways and parking areas, and how to plan and advocate them.	1½-2
31	Students keep a written list of their observations about local bicyclists for one or more days.	½-1
32	Students obtain a map of their community and plot and publicize bicycle trails for recreation and commuter transportation.	3-5
	Mini-unit 8 **Engaging in bicycle projects**	
33	Students discuss why adults, teenagers, and children buy and ride bicycles and the advantages and disadvantages of bicycling.	1-1½
34	Students plan, engage in, and evaluate different recreational bicycle activities.	2-4½
35	Students demonstrate, in a series of experiments, the potential use of bicycles for commuting.	2-3½
36	Students engage in bicycle-riding skill development activities that are designed to promote safe riding.	½
37	Students discuss and evaluate bicycle safety rules as they apply both to younger and older age groups, including adult motorists.	2-10
38	Students design and administer two polls: one to determine the public's attitudes toward and knowledge of bicycle safety; the other to learn the attitudes of automobile drivers toward bicyclists.	4-5
39	Students form a committee to act as an ombudsman for bicycle-related complaints, mediating between cyclists and merchants or repairpeople.	½-1
40	Students research the history and use of the bicycle in the United States and other countries and study bicycle laws and transportation-related issues.	½-6½
	Assessment activities	
41	You and the students evaluate class concerns about attitudes toward bicycles.	½
42	Students evaluate the course.	½-1
43	You and the students evaluate student attitudes toward various subjects covered in the course, including bicycle purchase, bicycle maintenance, redress of grievances, bicycle safety.	½-1
44	Students respond to written or oral questions on topics covered in the course.	½-1

WHY TEACH ABOUT BICYCLES

The Problems

The use of bicycles by people of all ages has increased tremendously in the United States. In 1965 bicycle sales were 5.6 million, in 1970 they were 6.9 million, and in 1976 they reached 8.1 million. In 1973, a peak year for bicycle sales, 15.2 million bicycles were sold. In that year more bicycles were purchased than automobiles. There are now 100 million bicycles in use, and it is expected that half the nation's population will be bicycle riders by 1980.

The increased number of bicycles has magnified the need to educate people about bicycle safety. In 1974, the Consumer Product Safety Commission singled out bicycles as the most hazardous product on the American market. It estimated that bicycles and the equipment associated with them are responsible for 460,000 injuries requiring emergency room treatment each year, the majority of which involve youngsters. Nearly three bicyclists are killed in accidents every day--or over 1000 a year. There are also 1 million bicycle injuries annually, including 60,000 concussions and 120,000 fractures. Two-thirds of bicycle deaths and a high proportion of injuries involve children aged 5 to 14.

Bicycle safety education is important not only for its own sake, but also as a means of inculcating basic transportation safety principles at an early age in a relevant way. By the time youngsters secure their driver's license, many of their attitudes toward safety have become ingrained and future education and experiences can do little to alter them. However, most of the safety principles learned in connection with the bicycle can be transferred to use of other transportation modes, including walking, motorcycling, and automobile driving.

The increase in bicycle sales recorded over the last few years has been accompanied by rising public interest in better biking facilities. Many states and local communities are using public funds to finance bikeways and bicycle parking facilities, and better bicycle facilities in turn are creating interest in the bicycle as a viable and nonpolluting, nonenergy-consuming form of urban transportation.

As bicycles have increased in demand and sophistication, bicycle thefts have become a major consumer problem.

Since there are now numerous types of bicycles available at a wide range of prices, financial considerations are increasingly important in the public mind. As equipment becomes more complex and expensive, maintenance and quality of repair work also become important issues for the consumer of any age.

The Solutions

Federal and state governments must promote balanced transportation by providing assistance for the planning, developing, and financing of improved bicycle facilities; they must enact legislation of assistance to bicyclists, enforce bicycle manufacturing standards, and develop bicycle-riding safety standards and regulations.

Local governments must provide adequate and safe bicycle facilities, conduct bicycling safety education programs, and take steps to curtail bicycle theft.

Citizens/consumers must become informed about bicycle safety laws and regulations and practice safe bicycling habits. They should become informed about problems associated with bicycle purchase, maintenance, and use, and participate in their solution.

Teachers must guide students to a better understanding of the importance of bicycle safety and the availability of adequate bicycling facilities. Classroom education and transportation consumer education can offer the student a unique opportunity to develop awareness and skills essential to acquire responsible bicycling habits and play a role in promoting responsible family and community attitudes toward bicycling.

This Manual focuses on developing consumer skills that are particularly appropriate to grades 9-12. The learning activities are designed to:

- Promote awareness of the variety of uses to which bicycles can be put--recreational, shopping, commuting, etc.

- Develop awareness of and a positive attitude toward safe bicycling practices, even as adults

- Stimulate a community-oriented concern to change the habits of people who ride their bicycles dangerously

- Develop wise purchasing skills, including the ability to effectively seek redress of grievances for unacceptable merchandise or repair work

- Motivate students to maintain their bicycles in safe operating condition and provide them with the necessary information to do so

- Encourage students to identify the need for bicycle facilities in their community and promote their development

MINI-UNITS
AND
LEARNING ACTIVITIES

MINI-UNIT 1

SURVEYING BICYCLE ISSUES

Note: The activities in this mini-unit are all selected from units which follow.

This first mini-unit is designed for instructors who may not have time to use all the in-depth units which follow and instead want to expose their students to a variety of issues related to bicycles and bicycling. This unit can also be used in conjunction *with* one of more of the following units.

The unit treats basic issues associated with bicycles, including

- Why people bicycle
- How to bicycle safely
- How to respond to peer pressures to ride dangerously
- How to buy a bicycle
- How to maintain a bicycle
- How to seek redress of grievances for unsatisfactory bicycle purchases and repairs

A consistent theme running throughout the activities in this unit is that of safety. Concern for safety should play a large role not only in bicycling but also in determining what kind of bike to purchase and why and how to maintain a bicycle in proper operating condition.

You can, of course, browse through the activities in the other mini-units and substitute one or more of them for those we have provided in this survey unit. You may find activities that are more appropriate to the needs of your particular students than the ones included in this survey.

MINI-UNIT 1 LESSON PLAN

Surveying bicycle issues

Activity #	*Activities*	*Class Time*
1[a]	DESCRIPTION: Students discuss why adults, teenagers, and children buy and ride bicycles and the advantages and disadvantages of bicycling. GOAL: To be familiar with the variety of reasons people bicycle and realize that how one plans to use a bike should influence the kind of bike one buys.	1-1½ periods
2[b]	DESCRIPTION: The class discusses bicycle safety. GOAL: To know the potential hazards of bike riding, the rules that should be followed to avoid these hazards, and the reasons these rules have been made.	½-1 period
3[c] Spirit Master #1	DESCRIPTION: Students discuss what bicycle characteristics purchasers should consider when deciding what bike to buy. GOAL: To know what factors should be taken into consideration in buying a bike, including the type of use to which the bike will be put, the most desirable style, and the price.	½-1 period
4[c]	DESCRIPTION: Students discuss embarassment at carefully examining a bicycle for defects and characteristics before purchasing it. GOAL: To cope effectively with feelings of self-consciousness that may result from being a cautious shopper.	½-1 period

[a] This activity also appears in Mini-unit 8.

[b] This activity also appears in Mini-unit 2.

[c] This activity also appears in Mini-unit 4.

MINI-UNIT 1 LESSON PLAN (CONTD.)

Surveying bicycle issues

Activity #	*Activities*	*Class Time*
5[d]	DESCRIPTION: Students role-play scenarios in which a consumer complains to a salesperson or mechanic. GOAL: To be able to seek redress of grievances effectively and appropriately for unsatisfactory purchases and repairs.	1 period
6[e]	DESCRIPTION: Students interview bike riders on common bicycle malfunctions they have experienced and what kind of maintenance they perform on their bikes to prevent breakdowns. GOAL: To know why bicycle maintenance is necessary to prevent certain types of bicycle malfunctions.	2-4 periods, plus out-of-class time
7[f]	DESCRIPTION: A class discussion is held on existing and needed bicycle facilities, such as bikeways and parking areas, and how to plan and advocate them. GOAL: To know what kinds of facilities are needed in their community (as well as in others) and how to go about obtaining them.	1½-2 periods
8[f]	DESCRIPTION: Students obtain a map of their community and plot and publicize bicycle trails for recreation and commuter transportation. GOAL: To know the various steps which go into planning and developing a desirable bike route for transportation or recreation in their community.	3-5 periods, plus out-of-class time

Total Class Time: 10-16½ periods.

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[d] This activity also appears in Mini-unit 6.

[e] This activity also appears in Mini-unit 5.

[f] This activity also appears in Mini-unit 7.

ACTIVITY #1

Mini-unit Topic: Surveying Bicycle Issues

Approximate Class Time: 1-½ periods

Capsule Activity Description: Students discuss why adults, teenagers, and children buy and ride bicycles and the advantages and disadvantages of bicycling.*

Goal:

To be familiar with the variety of reasons people bicycle and realize that how one plans to use a bike should influence the kind of bike one buys.

Concepts Treated:

- People ride bicycles for many different reasons, including pleasure, exercise, transportation to and from work, and transportation to and from school.
- The type of bicycle that a person buys should depend on a number of different criteria, including the person's age, his or her size, and the purposes for which he or she is planning to use the bicycle.

ACTIVITY

Students write a brief (½ page) description of the bicycling habits of one bike-riding adult, teenager, and child they have seen in real life or in the media. On a separate page, students explain why they think these individuals bicycle.

During the following class period, students divide into small groups and are given written instructions to

1. Read each other's papers.
2. Discuss and record the reasons *why* people bicycle, carefully distinguishing between adult, teenage, and child bicyclists.

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*This activity also appears in Mini-unit 8.

3. Put these reasons in order from the least to the most common reasons.

4. Try to decide whether people have different reasons for bicycling depending on: personality, age, sex, economic position, residence, etc.

5. Decide and record what kinds of bicycles are best suited for people who ride for different reasons. You may use a chart similar to that under Variation or Supplementary Activity.

The groups report their conclusions to the class and respond to comments and questions from you and the class.

Advantages to owning and riding a bike that can be discussed include

- Bicycling is an inexpensive way to travel compared to travel by car.
- Bicycling is faster than walking and more efficient in its use of body energy.
- Bicycling can be faster than traveling by car when there is a lot of traffic.
- There are often fewer parking problems for bicycles than for cars; in addition, it may be possible to park a bike closer to one's destination than a car can be parked.
- Bicycling conserves fuel resources.
- Bicycles do not pollute the air.
- Bicycling promotes health by providing exercise and an opportunity to get outside.
- Bicycling is fun for both adults and children.
- Bicycling can be relaxing, both in its own right and compared to driving a car in traffic.
- Bicycling can afford opportunities for meeting interesting people.

Disadvantages to owning and riding a bike that can be discussed include

- Bicycling can be unsafe, particularly in traffic. (However, driving an automobile and walking may be as dangerous or more so per mile traveled.)
- Bicycles are expensive.
- Bicycles are easily and frequently stolen.

- Bad weather--rain, cold, snow, and wind--make bicycle riding unpleasant or impossible.

- Bicycles cannot be used conveniently over long distances that must be traveled quickly.

- Smog and pollution, particularly from car exhausts, can make bicycling unpleasant and unhealthy.

- Owning a bicycle requires doing some maintenance.

- It is difficult or impossible to transport many things on a bicycle.

- It is difficult and risky (in terms of damage or sweating) to wear good clothing while bicycling.

- Riders must have a minimum of good health and physical dexterity to ride a bicycle.

Evaluation Methods:

Students role-play a reporter interviewing a man-in-the-street on why he rides or does not ride a bicycle.

Students role-play a consumer advisor helping someone decide on the type of bicycle to buy, based on how it will be used.

Variation or Supplementary Activity:

Create a decision chart by listing the reasons why people bicycle (identified in Steps 2 and 3 in the activity) down the left side of the page. List the possible types of bicycles across the top of the page. Students should make a check in the appropriate box on this chart whenever they agree that a particular type of bicycle is well suited to a reason or purpose for bicycling.

ACTIVITY #2

Mini-unit Topic: Surveying Bicycle Issues **Approximate Class Time:** ½-1 period

Capsule Activity Description: The class discusses bicycle safety.*

Goal:

To know the potential hazards of bike riding, the rules that should be followed to avoid these hazards, and the reasons these rules have been made.

Concepts Treated:

- Careless bike riding can be very dangerous, leading to a wide variety of potentially serious--or even fatal--accidents and injuries.
- Bicycle safety rules--if followed carefully--can prevent serious bike accidents; such rules include obeying normal traffic regulations, using or wearing special equipment, making an effort to concentrate on what the other fellow is doing on the road, and being sure to keep one's bicycle well maintained and in good condition.

ACTIVITY

Conduct a class discussion on bicycle safety. Such a discussion should consider the topics given below:

Basic information about numbers, types, and causes of bicycle-related accidents in the United States should be given:

Bicycle accidents cause the most injuries requiring emergency ward treatment each year (460,000).

There are 1 million bicycle-related injuries a year, including 60,000 concussions and 120,000 fractures.

Bicycle accidents cause 1000 deaths a year--3 a day.

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*This activity also appears in Mini-unit 2.

Twenty percent of bike accidents occur in rural areas.

Approximately 26 percent of bike fatalities occur at night.

Two-thirds of bicycle deaths involve children aged 5 to 14 years.

Bicyclists are not protected in spills or crashes, while auto drivers are.

Additional safety information is provided in the Consumer Product Safety Commission report at the end of this activity.

Major safety rules should be described:

Obey the laws.

Ride with the traffic; riding against traffic can result in running into cars coming out of driveways and roads, because auto drivers do not check for traffic coming down on the wrong side of the street; running into doors opened from parked cars for the same reason; running into cars on curves, since car drivers will hug the inner side of the road and cannot see a bike rider (nor can the bike rider see the car) until it is too late; compounding the speed of the car and the bike if they collide; and colliding with an automobile or other vehicle head-on.

Do not speed; speeding makes it harder to avoid pedestrians, potholes, glass, sand, drains, and other vehicles.

Signal all turns, so that cars don't run into you as you turn.

Don't hitch rides with other vehicles.

Don't ride sidesaddle or on the handlebars.

Don't weave in and out of traffic.

Special situations and equipment that can be mentioned include these:

Use lights, reflectors, and light-colored clothing when riding at night; the French two-way armband light is especially good.

Slow down in rainy weather to avoid skids (wet leaves are especially dangerous); brakes, especially caliper ones,(hand brakes) function poorly in wet weather.

Wear protective helmet, particularly when riding on streets and highways.

Wear clips over long pants to keep cuffs from catching in gears; make sure shoelaces are short for the same reason.

Avoid traffic whenever possible.

Don't ride two or more abreast on the road; keep single file.

Avoid bicycles with high handlebars and small wheels--they are involved in a large percent of accidents because they are less stable.

Avoid trying tricks such as "wheelies" (riding on rear wheel only) and "jumpies" (slamming on the brakes so the bike will fly through the air).

Do not ride a bicycle that is too small or too large.

Concentrate while riding:

Watch for cars coming out of driveways and side streets.

During sunsets and rainy days, be especially careful of cars because they may not be able to see you.

Watch out for sudden moves by pedestrians.

Listen for cars coming up behind you.

Look out for opening doors on parked cars.

Watch out for potholes, drains, sand, and glass.

Be especially careful and observant at intersections.

Maintenance of bicycles is discussed in Activity 6, a class discussion on bicycle maintenance. Maintenance tasks include tire care, lubrication, tightening bolts and screws, adjusting brakes, and keeping the bicycle dry and clean.

Bicycle registration: In an emergency, a bike registration may help police to contact parents or other relatives. This may also help to recover lost or stolen bike.

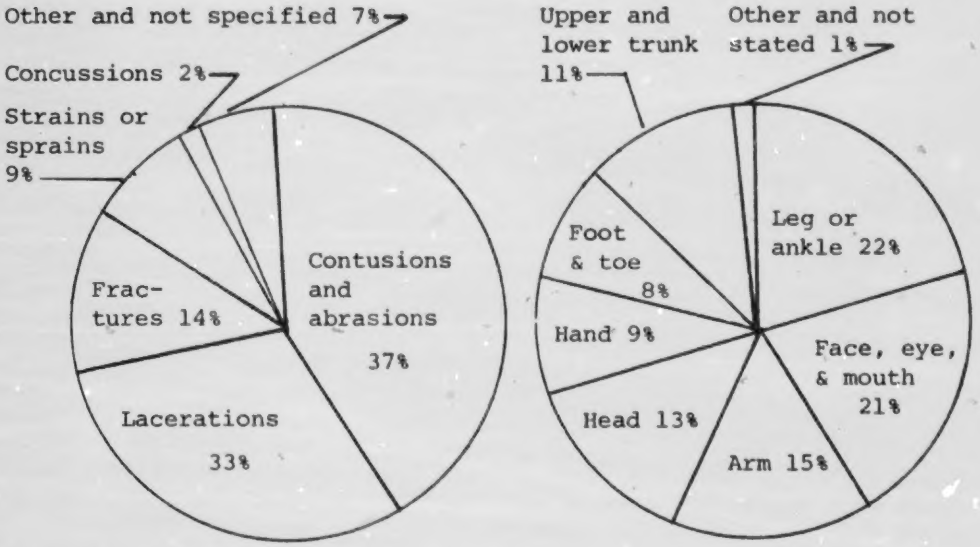
Class discussion can follow on such issues as why many riders commonly ignore these safety rules and what can be done to encourage riders to practice these rules.

Evaluation Method:

Each student writes a first-person autobiographical account of a bike trip that involves as many safe riding practices as possible. Students exchange papers and one student identifies all the safety items included in the other student's paper.

Summary of NEISS Matrix Data on Bicycle Injuries

From Consumer Product Safety Commission



For 7/1/75 through 6/30/76 injury cases reported by the National Electronic Injury Surveillance System. Total bicycle injuries were 21,117 for this period.

During the 12-month period, July 1, 1975 through June 30, 1976, data on 21,117 injuries associated with bicycles were collected by the National Electronic Surveillance System (NEISS). The majority (70 percent) of the victims suffered either lacerations or contusions and abrasions. Fractures were third, accounting for 14 percent of the injuries. There is broad distribution among body parts injured. Most (74 percent) of the injuries were to children under 15. However, injuries to bike riders over 15 occurred with frequency and severity sufficient to merit consideration. Twice as many males as females suffered injuries.

Reasons for accidents were similar for both sexes in all age groups. Losing control was one of the most common factors cited in bicycle accident investigations. However, in many cases, loss of control followed some other factor (such as riding double, stunting, and foot slippage) or resulted from poor design or component failure. The chart below breaks down bicycle injuries by age and sex as identified by NEISS.

Age and Sex Distribution

Age	*Percent*	*Age*	*Percent*
0-4	12	25-34	3
5-9	38	35-44	1
10-14	33	45-54	1
15-19	9	55-64	1
20-24	3	65+	Less than 1

Sex	*Percent*
Males	65
Females	35

ACTIVITY #3

Mini-unit Topic: Surveying Bicycle Issues **Approximate Class Time:** ½-1 period

Capsule Activity Description: Students discuss what bicycle characteristics purchasers should consider when deciding what bike to buy.*

Goal:

To know what factors should be taken into consideration in buying a bike, including the type of use to which the bike will be put, the most desirable style, and the price.

Concepts Treated:

- There are many questions that a person should ask him or herself before buying a bike, including what he or she will use it for, how much he or she has to pay, what kind of accessories are needed, and what style of bike is most comfortable and reliable.
- The buyer should be sure that the store from which he buys is reputable and will give him good service in the future.
- The final step in bike buying involves a careful check of the bike that is actually selected, including a test ride.

ACTIVITY

Students write responses to the following letter:

Dear Consumer Advisor:

I am 15 years old and want to buy a bicycle. My old bicycle which I have had since I was a kid doesn't seem to be good enough for my needs anymore. I plan to use it to bike to school, three miles away and up a steep hill.

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*This activity also appears in Mini-unit 4.

I also need something to get me to work in a hurry. I get out of school at 2:30 and I have to be at work by 3:00 P.M. The place I work is three miles from school which isn't very far but traffic is often heavy. My parents will give me $65 for a new bike and I have $50 saved in the bank. What kind of bike should I get? How many gears? Racing or conventional? Racing handlebars or regular handlebars? What brand? How much should I pay?

Sincerely,

Janice Wolff

During the following class period, students divide into small groups and are given written instructions to

Discuss whether they disagreed on the type of bike Janice should buy and, if so, why

Agree on what kind of bike she should buy and why

Decide, in general, how someone should go about assessing what kind of bike he or she should buy--what factors need to be taken into account, such as whether the purchaser plans to bike up steep hills, wants a rugged bike for dirt roads, will be exposing an expensive bike to theft risks, wants minimum upkeep costs, etc.

Groups report their conclusions to the class and respond to comments and questions from the class. Compile a list on the blackboard of purchase criteria the groups have come up with and try to gain a class consensus on what they should be--such as plans to bike up hills, plans to ride long distances, etc. You can also use the purchase consideration chart provided on Spirit Master #1.

The following lists include steps in determining what kind of bike to buy, deciding where to buy the bike, and actually buying the bike. You might bring some of these up if the class fails to mention them. The steps in determining what kind of bike to buy include

1. Decide what bike will be used for--short trips, long trips, commuting, recreation, up hills, over rough terrain, racing, touring, etc.

2. Decide how long the bike will be owned. This is a consideration in particular with bicycles for small children.

3. Select the brand of bicycle. It is useful to compare the repair records of various bike brands and models.

4. Choose a style--racing, banana seat, conservative, etc.

5. Determine number of speeds or gears--one, three, five, or ten--and how gear ratios influence hill-climbing capabilities.

6. Select handlebars--racing, conventional, or high-rise.

7. Select price range--$50 to $100, $100 to $200, over $200.

8. Select proper size.

9. Determine the availability of replacement parts and services.

Three steps are involved in deciding *where* to buy a bike:

1. Compare bike prices in different stores, including any assembly charges.

2. Determine store's reputation for selling quality products and making competent repairs.

3. Consider whether the bike should be bought from a store that can and will repair it competently and promptly.

Some of the steps involved in actually buying a bike include

1. Examine the tires--are they sew-ups or clinchers? Are they in good condition? (Clinchers are the most common and durable and the easiest to repair.)

2. Select the right size frame.

3. Test ride the bicycle.

4. Check the frame for defects and type of construction--welded or brazed. (In better bikes, frames are usually brazed. Welding, which is done at high temperatures, robs metal of its strength.)

5. Examine the warranty.

Selecting accessories can be discussed in terms of why they are desired or needed--for safety, convenience, or aesthetic reasons. Examples of accessories include lights (generator or lamp? on the bicycle, worn on the rider, or both?); locks; saddle bags, baskets, and book racks; tire pumps; tire pressure gauges; water bottles; gloves; kickstands; toe clips, pant-cuffs clips; chain shields that prevent trousers from getting caught in chains; child seats; tire-repair kits; cloth handlebar tape; car racks for transporting bikes; and bicycle safety flags for increased visibility.

Evaluation Method:

Students write their own letters to a consumer adviser, describing someone who plans to buy a bike. Students then exchange letters and each student responds to one other student's letter in terms of what kind of bike he or she should buy.

Variations and Supplementary Activities:

Students can interview parents and other bicycle purchasers on how they decided what kind of bicycle to buy.

Students can interview bicycle salespeople on what kinds of bikes most customers buy and why.

Students can discuss and read about accessories they should or might want to buy.

The class can discuss how the sequence of tasks to follow in determining which bicycle to buy and buying one can be varied from the sequence offered in this activity.

Discussion can focus on what to examine in buying a used bicycle, such as condition of the frame, how well the gears work, presence of rust, tire condition, and the number of accessories included.

Students can fill in a copy of the purchase considerations chart (Spirit Master #1) for their ideal bike and then discuss their selection criteria.

ACTIVITY #4

Mini-unit Topic: Surveying Bicycle Issues

Approximate Class Time: ½-1 period

Capsule Activity Description: Students discuss embarrassment at carefully examining a bicycle for defects and characteristics before purchasing it.*

Goal:

To cope effectively with feelings of self-consciousness that may result from being a cautious shopper.

Concepts Treated:

- Potential purchasers of expensive items such as bicycles are fully justified in being very careful about the product they buy.
- Salespeople can sometimes be less than helpful when a young person is attempting to make an important purchase, and sometimes may even be troublesome.
- There are certain polite ways in which to ask questions about product characteristics or defects and in which to handle difficult salespersons.

ACTIVITY

Students write a brief description of any experience in which they intended to purchase a product but felt embarrassed or nervous about examining it carefully before buying. Students include in their account

- Whether they did examine it and how carefully
- How the salesperson responded (with anger, annoyance, consideration, additional information; refusal to serve the customer) and why
- Whether they found any defects or unwanted or missing parts

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*This activity also appears in Mini-unit 4.

- What they did about any defects or unwanted or missing parts

- Whether they purchased the product and why or why not

Students then break into small groups and are given written instructions to discuss

- All the *reasons they were embarrassed* or nervous, such as concern about the salesperson getting angry; their revealing ignorance about the quality of the product, about what they wanted in the product, or about whether they really wanted to buy the product; other people waiting for service who were getting angry at the delay or other influences that customers may have on a potential buyer; their need for the product, regardless of defects (e.g., because of the shortage of available bicycles); and not knowing what to do if a defect or missing part was discovered

- Methods customers can use *to avoid feeling embarrassed* in such situations or to be motivated to examine products carefully despite their embarrassment, such as knowing in advance what to examine in a bicycle before buying; knowing exactly what kind of bike one wants to buy; planning in advance what to do if a defect is found, unwanted parts are present, or a desired part is missing (such as demanding a discount, a new product, or that the defect be repaired or the missing item included); and identifying methods by which to exert influence over salespeople (such as asking for the supervisor or indicating that you might shop at a competitor's store or might write to the manufacturer or distributor)

The groups report their conclusions to the class and respond to questions and comments from you and the class.

Evaluation Method:

Students test their learning in subsequent purchasing situations (not necessarily related to bicycles) and report their results to the class.

Variations and Supplementary Activities:

Students can role-play scenarios in which they ask questions about bicycles before buying.

This activity can be held as a class discussion.

Students can research the recommendations of consumer protection groups on how to examine bicycles before buying.

ACTIVITY #5

Mini-unit Topic: Surveying Bicycle Issues

Approximate Class Time: 1 period

Capsule Activity Description: Students role-play scenarios in which a consumer complains to a salesperson or mechanic.*

Goal:

To be able to seek redress of grievances effectively and appropriately for unsatisfactory purchases and repairs.

Concepts Treated:

- Certain methods for seeking redress of grievances are more effective than others.
- The redress one seeks should match the grievance.
- Practicing seeking redress of grievances can facilitate such action when it proves necessary in real life.

ACTIVITY

Students role-play customers seeking redress of grievances from bicycle repairmen or salespeople who, according to these "consumers," have engaged in unfair business practices. Sample role profiles are provided on the following pages.

After each role play, participants read their role profiles to the class and discuss the feelings they had while role-playing; in particular, "salespeople" and "mechanics" discuss their emotional reactions to different approaches on the part of "customers"--which approaches made them more likely to be firm and which approaches inclined them to make concessions. Nonparticipants discuss what they would have said and done had they been involved. The class should be encouraged to write its own role profiles.

After completion of the role plays, list on the blackboard the possible responses that salespeople and mechanics can offer to justify their positions and the possible approaches consumers can use in seeking redress of grievances.

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*This activity also appears in Mini-unit 6.

Evaluation Method:

Students compose the dialogue to one or more scenarios, writing the parts of the customer and the salesperson.

Variation and Supplementary Activity:

This activity can be held as a class or small group discussion.

Sample Role Profiles

No Refund

Customer

Last week you bought a Whimper bicycle light for your bike for $3.50 at Arlo's Accessory Shop. The second time you used it, the on-off switch broke off. It's not something you can repair. You need a new light. You are angry and have taken the light back to Arlo's and walk up to him to demand he give you a new light for nothing or give you your money back. What do you say?

Salesperson

You work in Arlo's Accessory Shop. Most of the bicycle accessories you sell are cheap, but most of your customers don't want expensive bicycle lights, saddle bags, horns, and so on. The problem is that many of the accessories you sell break quickly because they're so cheaply made. It's store policy not to refund money on any sales or to exchange anything, so it's sometimes a problem when someone comes in the store with an accessory that broke quickly and he wants his money back. In fact here comes the customer who bought your last Whimper bicycle light last week. He looks angry. It must have broken already. Why didn't he (she) buy the more expensive Whopper light as you had suggested? Although the Whimper light is only $3.50 and the Whopper light is $12.50, the Whopper light wouldn't break. Well, here comes the complaint.

Delay

Customer

You bought a new $234 racing bike from Zooey's Department Store. You took it out for its maiden ride and the rear derailleur broke. You went home and looked up the warranty. It says that Zooey's will replace any defective parts free during the first two months but will charge for labor. You take the bike into Zooey's and speak to the salesperson. You are about to tell him the problem and ask him to repair or replace the derailleur for nothing since it's in your guarantee. You also want him not to charge you for the labor, even though that's not in the guarantee. You step up confidently to him. What do you say?

Salesperson

You sell bicycles in Zooey's Department Store. However, your store doesn't repair bikes. It sends them out to be repaired and this usually means it takes about five weeks to get a bike repaired for a customer. You don't like this policy because customers get angry at you and your salary depends on how many bikes you sell. The more you sell, the higher your salary. And the more angry customers you have, the less likely they are to buy any bikes from you in the future. But it's the store policy and you feel stuck with it. In fact, here comes an angry looking customer with a bicycle you remember selling him only last week. You remember that this particular model has been having trouble with the derailleurs--and it costs $25 in labor to have them fixed, although the warranty does guarantee that there is no charge for the part. Oh, oh! Here comes what looks like another angry customer with a broken derailleur!

Poor Service

Customer

You had your brakes repaired on your bike last week in Bibby's Bicycle Shop and it cost you $7.50. One of the cables had broken. Only yesterday the same cable broke again! You are furious and have taken the bike back to Bibby's ready to demand that he repair it for nothing--no parts or labor charges--and guarantee it won't break again. The repair person has just finished waiting on another customer. You walk over to him (her). What do you say?

Repairman

You are the repairman in Bibby's Bike Shop. You feel you are good at your job, but of course sometimes you don't do such a great job making repairs--you have so many to do and the owner, Mr. Bibby, wants you to get as many done as you can. Sometimes, too, you have to work with bikes and materials that aren't that great--they aren't made well or they break easily. Right now, as you deal with one customer, you notice a customer whose brake cables you repaired only last week bringing his bike back into the store and you can see the broken brake cable across the store. You charge $7.50 ($4.00 labor and $3.50 for parts) for fixing brake cables but you know this customer is probably going to want you to fix this cable free. How are you going to solve this problem? Mr. Bibby doesn't like you to do repairs for nothing, even when the problem was your fault. But it wasn't even your fault, necessarily. Maybe the cable was a lousy cable to begin with. You're just finishing up with your customer and this customer with the broken cable walks over to you.

ACTIVITY #6

Mini-unit Topic: Surveying Bicycle Issues

Approximate Class Time: 2-4 periods, plus out-of-class time

Capsule Activity Description: Students interview bike riders on common bicycle malfunctions they have experienced and what kind of maintenance they perform on their bikes to prevent breakdowns.*

Goal:

To know why bicycle maintenance is necessary to prevent certain types of bicycle malfunctions.

Concept Treated:

- Certain bicycle malfunctions are closely or directly related to lack of proper maintenance.

ACTIVITY

Break the class into small groups to research briefly bicycle maintenance tasks. Have each group develop a list of questions to ask bike riders regarding bicycle maintenance problems they commonly have. Each group takes one other group's questionnaire as a dry run. Sample questions the groups might ask follow:

- What are the two or three most common problems you have with the functioning of your bicycle?
- How do you take care of these problems? Do you fix them yourself? have a friend fix them? use a mechanic? just not fix them?
- What types of maintenance do you perform on your bicycle?
- If you do not perform all the standard maintenance tasks, why not?
- Do you feel regular maintenance helps prevent bicycle malfunctions?

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*This activity also appears in Mini-unit 5.

The groups decide how to poll cyclists--on the street, door-to-door, choose among classmates or among bicycle club members, etc. They then decide what correlations to make (such as by age, sex, type and age of bike owned). Finally, the groups divide up responsibility for the polling.

After conducting the poll, the groups collate and evaluate their findings and prepare a report for the class. After presenting the report, the groups respond to comments and questions from you and the class.

Evaluation Method:

Students develop a brochure for cyclists on what maintenance to perform and indicate how such maintenance can help prevent future bicycle malfunctions.

Variations and Supplementary Activities:

The group can interview the parents of small children who ride bikes.

Students can also interview bicycle mechanics about bicycle problems that regular maintenance and care can prevent. Sample questions students can ask include the following:

1. What problems with bicycles are brought in to you that could have been prevented by regular maintenance?

2. What maintenance task could have prevented each type of problem?

3. Why do some people not perform these maintenance tasks?

4. What other maintenance tasks should the average bike owner perform and how often?

5. How should a bike be stored in winter?

6. Are there any kinds of maintenance tasks which must be performed by a mechanic?

ACTIVITY #7

Mini-unit Topic: Surveying Bicycle Issues **Approximate Class Time:** 1½-2 periods

Capsule Activity Description: A class discussion is held on existing and needed bicycle facilities, such as bikeways and parking areas, and how to plan and advocate them.*

Goal:

To know what kinds of facilities are needed in their community (as well as in others) and how to go about obtaining them.

Concepts Treated:

- In order to obtain adequate and satisfactory bicycle facilities for a community, it is necessary to assess that particular community's needs and resources first.
- Planning for community bicycle facilities involves going through a number of well ordered steps.
- The public can engage in citizen participation designed to promote the development of bicycle facilities such as bikeways and bike lanes.

ACTIVITY

A class discussion is held on what bicycle facilities exist in the community, what other facilities may be needed, and how citizens can plan for and advocate these facilities. The discussion can cover five areas, as follows:

Definitions of terms that describe facilities include bikeways (streets with signs indicating that they may be used by bicyclists but that there are no separations between cyclists and motorists); bike lanes (right-hand sections of streets marked off by a white line for use by bicyclists); and bike paths (trails for bicycles that are physically separate from streets).

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*This activity also appears in Mini-unit 7.

Types of facilities that can be identified include bikeways, bike lanes, bike paths; street signs warning automobile drivers that bicyclists are on the streets; convenient and safe parking facilities for bicycles (metal, well lighted, easily observable); legislation--not exactly a "facility," but within the general area of this discussion (for example, legislation allowing bicyclists to use uncrowded sidewalks); and street cleaning to remove glass and other debris from the edges of roads where bicyclists travel.

Purposes of facilities vary according to the facility. Some examples that can be discussed include purposes of bike paths and lanes (safety, speed, convenience, distance from car exhaust fumes); purposes of parking facilities (convenience, i.e., closeness to destination; safety, i.e., where pedestrians and cars won't run into them; and security, i.e., reduced risk of theft).

Determining what facilities are needed involves two steps: (1) deciding what types of facilities are needed (parking facilities, signs, bike paths, bike lanes, etc.; this can be done by conducting polls and interviews, by observing community traffic patterns, and contacting appropriate officials in government and private agencies and organizations) and deciding what the particular characteristics of each type of facility should be, including for parking facilities (where they should be located; what they should be made of; whether they should be metered or free; etc.) and for bike lanes and paths (how wide they should be; how steep; how they should be surfaced, i.e., concrete, dirt, etc.; with overpasses and underpasses; etc.).

Indicating how facilities may be obtained also involves two steps, one research oriented and one action oriented: (1) Identify who in the community makes or could make the important decisions about bicycle facilities and who has the power and money to implement these decisions (e.g., Departments of Public Works, Departments of Transportation, politicians, Park and Recreation Departments, highway or traffic engineers, etc.). The 1973 Federal Highway Act permits states to spend up to $2 million a year of highway funds on bike paths and parking facilities.* (2) Discuss the actions citizens may take to influence these individuals and agencies to provide bicycle facilities, such as writing letters to key individuals; organizing meetings with key individuals, agencies, and organizations to explain the need for bicycle facilities and press for their development; circulating petitions in the community and forwarding them to key individuals, agencies, and organizations by mail or at a meeting; during political campaigns, asking candidates to take a stand on providing bicycle facilities; joining bicycle organizations that engage in political activity, such as the

Concerned Bike Riders for the Environment
P.O. Box 24388
Los Angeles, CA 90024

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*See the reading at the end of this activity.

Friends for Bikecology
1035 East De La Buerra
Santa Barbara, CA 93103

organizing bike-ins, rallies, and conventions (bike-ins involve attention to route selection, notification of proper authorities, involvement of the media, and determination of objectives); demonstrating the need for facilities (e.g., if parking on the sidewalk is not allowed, parking in automobile spaces to demonstrate the need for bicycle parking facilities); and building facilities or otherwise providing them oneself (e.g., developing bike paths or building parking facilities; permission, if not active assistance, from local authorities is usually needed for these activities).

Specific information for securing funds for new bikeways in the local community is contained in a government publication entitled *Bicycles & Pedestrian Facilities in the Federal-aid Highway Program.* Major portions of this pamphlet are provided at the end of this activity. In addition to reading the information provided in this publication, students will also need to learn which local government agencies have jurisdiction for planning and funding bikeways and what procedures these agencies have for receiving comments and petitions from local residents.

After the discussion, students are given the following scenario and then engage in the exercise which follows:

> You have just been put in charge of deciding what public bicycle facilities your community should have. In addition, you have been given a million dollars to spend on building them. What, *exactly,* will you build and where?

Students then break into small groups, read each other's papers, and discuss them. Group discussion should center on

- What facilities those in the group agreed that the community needs
- What facilities the group disagreed on and why
- What are the most important facilities to get first and why

The groups report their conclusions to the class, and respond to comments and questions from you and the class.

Evaluation Methods:

Each student selects one facility which he or she would like developed in the community, records why, and develops a strategy for obtaining it. Students exchange papers, and each student pretends he or she is the person or agency toward whom the strategy of the other student's paper is aimed. The second student then decides whether he or she would actually be influenced by that strategy.

Students are given a map of a hypothetical community, or of a community other than their own, and asked to indicate where they feel there should be bicycle facilities and why.

Variations and Supplementary Activities:

Students can seek to have their suggestions implemented in their own community.

Students can poll the community on its attitudes toward bicycle facilities.

BICYCLES AND PEDESTRIAN FACILITIES IN THE FEDERAL-AID HIGHWAY PROGRAM*

In carrying out its responsibilities in the administration of the Federal-aid highway program, the Federal Highway Administration (FHWA) has responded to the changing transportation needs and desires of the American public. One of these changes is the increasing need and desire for bicycle facilities.

To meet this change, the FHWA has approved the provision of bicycle and pedestrian facilities as part of a Federal-aid highway project wherever conditions are favorable and a public need is served. The policy has thus far resulted in 55 miles of bicycle facilities constructed at an approximate cost of $2 million and another 334 miles planned at an estimated cost of $15 million. At least 23 states have taken advantage of this policy.

In 1973, Congress enacted the Federal-aid Highway Act of 1973, which permitted FHWA to expand its bicycle program. Section 124 of this Act (Title 23, U.S. Code, Section 217) allows the use of Federal-aid highway funds to construct bicycle and pedestrian facilities independent of regular highway projects. It should be noted that funds are not reserved exclusively for bicycle or pedestrian facilities, but are, in fact, highway funds that may be used for highways, bikeways, and walkways.

The Federal-aid Highway Program

The Federal-aid highway program is a cooperative effort between the states and the Federal government. Each year, the Federal Highway Administration apportions Federal-aid highway funds to the states for the planning, construction, and improvement of roads and bridges on the Federal-aid highway systems. The states are responsible for the administration of these various types of funds.

Highway Planning and Research Funds (HP&R) and Planning Funds (PL) are used to fund the planning and research activities that are necessary for development and implementation of highway projects, including bicycle and pedestrian facilities. The limit of the Federal-aid share of planning and research project costs is approximately 80 percent.

HP&R projects may be located anywhere in the state and are selected by the state transportation agency. PL funds are to be used for planning projects that are located in an urbanized area that contains a population of 50,000 or greater. The metropolitan planning organization responsible for transportation planning in the urbanized area selects the projects to be financed with PL funds.

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*Published by the U.S. Department of Transportation, Federal Highway Administration (FHWA), 1974.

The FHWA apportions construction funds to the states on a system basis: interstate, primary, secondary, and urban. The limit of the Federal-aid share of interstate system project costs is approximately 90 percent and approximately 70 percent for the other systems' project costs.

Projects proposed for Federal-aid funding on the interstate, primary, and secondary systems are selected by the appropriate state transportation agency with consideration of state and local needs and desires.

Urban system funds may be used for projects located in urban areas of 5,000 population or greater. Also, a certain portion of urban system funds must be spent in urbanized areas with a population of 200,000 or greater. Projects proposed for Federal-aid funding on the urban system are selected by local elected officials acting through the metropolitan planning agency. These projects must have the specific concurrence of the state transportation agency and the state transportation agency should be contacted to determine the Federal-aid highway systems in a particular area. This information may also be obtained from the FHWA division office located in each state.

Funding Bicycle and Pedestrian Facilities

Planning and Research Projects

Planning and research activities that are necessary for the development of bicycle facilities may be financed with HP&R and PL funds. Where appropriate, planning for bicycle and pedestrian facilities should be included in the normal ongoing transportation planning process.

Construction Projects

The FHWA encourages the construction of bicycle and pedestrian facilities as part of the regular Federal-aid highway program. The construction of bicycle and pedestrian facilities may be approved where all of the following conditions are satisfied:

1. The facility will not impair the safety of the pedestrian, bicyclist, or motorist.

2. The facility will connect with existing facilities usable by bicyclists or it will form a segment of a proposed bicycle system.

3. A public agency has formally agreed to (a) operate and maintain the facility and (b) ban all motorized vehicles except maintenance vehicles and snowmobiles when snow conditions and state or local regulations permit.

4. It is reasonably expected that the facility will have sufficient use in relation to cost to justify its construction and maintenance.

Incidental Construction Projects. Bicycle and pedestrian facilities may be constructed as incidental features of highway construction projects when the bikeway or walkway is to be constructed concurrently with the improvement for motor vehicular traffic and the bikeway or walkway will be within the normal right-of-way of the highway, including land acquired for traffic improvements and scenic enhancement programs. Projects constructed as incidental features of larger highway construction projects may be financed with the same type of Federal-aid funds used for the basic highway project, including interstate projects, and are not subject to the funding limitations for independent bikeway or walkway projects.

Independent Construction Projects. Bicycle and pedestrian facilities may also be built independently of other highway construction projects. Such projects may be constructed on existing highway right-of-way or on special right-of-way or easements acquired for this purpose. Where facilities are to be located away from Federal-aid highway right-of-way, they must serve bicycle and pedestrian traffic which would normally desire to use the Federal-aid highway route.

The limit of the Federal-aid share of independent bicycle and pedestrian project cost is approximately 70 percent. A state may spend up to $2 million of Federal-aid funds in a year for independent bicycle and pedestrian facilities, provided a nationwide total of $40 million annually is not exceeded.

Features of Bicycle and Pedestrian Facilities

Bicycle and pedestrian facilities may include various features which will make their use safe, enjoyable, convenient, and efficient. The following are some of the features which may be included in a bicycle and pedestrian facility financed with Federal-aid highway funds.

1. Grading, drainage, paving, barriers, landscaping, and structures necessary to accommodate the number and type of users of the facility

2. Fixed source lighting where its use is appropriate

3. Right-of-way (land acquisition and relocation assistance) on independent bikeway and walkway construction projects

4. Curb-cut ramps on now-existing facilities, including ramps required for access by the physically handicapped

5. Bikeway and walkway grade separations where (a) vehicular speeds and crossing volumes constitute a hazard of such magnitude as to justify the cost of the structure, and the bikeway or walkway cannot be rerouted to another structure or (b) the separation is necessary because the highway has complete control of access

6. Traffic control devices, including signs, signals, and pavement markings

7. Supplementary features such as shelters, parking, storage facilities, and comfort stations

8. Walks, barriers, and additional widths and lengths on bridges necessary for bikeways and pedestrian walkways for route continuity.

Acquiring Federal Aid

The first recommended step in acquiring Federal aid for bicycle and pedestrian facilities is gaining the support of local governments for the proposed facility. Local governments provide valuable input into the highway program. This input varies from suggestions on the location and design of the facility to the selection of specific projects to be financed with Federal-aid highway funds.

The second step is to contact the local and state organizations previously indentified as having the responsibility for the selection of projects to be financed with Federal-aid highway funds.

Further information concerning the operation of the Federal-aid highway program in a particular state may be obtained from the FHWA division office for that state.* The division offices can also provide specific information on state and local government agencies which should be contacted in conjunction with the development of projects.

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*Check your phone book under your state government for the office in your state.

ACTIVITY #8

Mini-unit Topic: Surveying Bicycle Issues

Approximate Class Time: 3-5 periods, plus out-of-class time

Capsule Activity Description: Students obtain a map of their community and plot and publicize bicycle trails for recreation and commuter transportation.*

Goal:

To know the various steps which go into planning and developing a desirable bike route for transportation or recreation in their community.

Concepts Treated:

- Planning of bicycle routes is a relatively complicated activity, calling for several research- and activity-oriented steps.
- Once planning has been undertaken, it may be necessary to undertake community action in order to make routes safer or more convenient.

ACTIVITY

Small groups of students obtain or are provided with maps of their local community and are given written instructions to

1. Orient themselves to the map by identifying familiar points, such as homes and schools. Mark these on the map.
2. Identify one to three trips they, their friends, or the townspeople would like to be able to make by bicycle. These might be trips from home to school, home to shopping centers or lakes, or just scenic trips. Since they do not all live in the same neighborhood, they may have to compromise on the starting point for your route.

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*This activity also appears in Mini-unit 7.

3. Decide as a group what they want in a bike route in terms of safety, convenience, and fun. Develop a check list under each of these items--for example, under safety they might have wide streets, few cars, and low speed limits.

4. Plot on the map the best bicycle route for making the trip, keeping the checklist in mind. It is necessary to be familiar with all the streets they may want to use on their route so that all possible dangers can be avoided.

5. Decide on how and when to take a test bicycle ride over the route(s) they have picked. They may want to divide up or all go together on the trip(s). Then test drive the routes, looking for the items they identified in relation to safety, convenience, and fun.

When each group has completed its test drives, the groups reform and compare notes about their routes--whether they are viable bike routes, whether some parts of the routing need to be changed (and if so, how), or whether there is no good bike route between the points they identified. Each group then reports its routes to the class. The class selects one or two routes it feels would be most used by the community's bicyclers and breaks into small groups, each one of which develops its own strategy for publicizing or making safe those routes. Different groups can, for example

- Draw routes on a community map, reproduce the map, write up commentary for it, and distribute copies to classmates or community residents

- Prepare and give a presentation to the police department informing it that there may be increased use of bicycles along these routes and asking what police and bicyclers can do to make these routes safe for bicyclists

- Prepare and give a presentation to the relevant community officials asking to have the routes identified in community literature and on street signs as bicycle routes (it may be possible to have a separate bike lane marked off or built)

- Prepare and give a presentation to local news media asking them to publicize the routes

- Prepare a brochure for dissemination by bicycle dealers, to inform new bicycle owners about available bike routes

Each group reports to the class about its publicity efforts, and considers what further actions, if any, need to be taken to make the routes safe for bicycling.

Evaluation Methods:

Students poll classmates and bicyclists in the community one month after the activity to determine whether these individuals are aware of the routes and use them.

Students present the results of their efforts to a bicycle club for evaluation.

Variations and Supplementary Activities:

This activity can be adapted to the issue of bicycle parking facilities.

Students can plan a bicycle path in their community.

MINI-UNIT 2

IDENTIFYING AND PROMOTING SAFE BICYCLING PRACTICES

Mini-units 2 and 3 focus primarily on bicycling safety, although as we noted in the introduction to Mini-unit 1 safety is a theme of several of the other units as well. This mini-unit takes up safe bicycling practices--identifying them and pointing out why they should be followed. Mini-unit 3 investigates why people ride dangerously. Two activities in Mini-unit 8 (#37 and #38) also address bicycle safety issues and serve as good individual or group follow-up projects to both of these mini-units. Similarly, Activities 34, 35, and 36 promote safe bicycling skills.

There are many misconceptions about how to ride safely (for example, which side of the road to ride on) that need to be corrected. In addition, there are numerous bicycling hazards (such as sewer gratings) that many bicycle riders--both new and old--are unaware of. This unit seeks to dispel such misconceptions and point out these hazards.

This mini-unit also has another goal: to motivate students to discourage *other* people from unsafe bicycling practices. The unit provides suggestions for how students can do so without seeming "finky" or acting like killjoys. One approach the unit takes to achieve this goal is to place the students in the role of parents deciding what bicycle safety rules they (the students) would set for their own children. In this manner, pupils are stimulated to recognize that many of the bicycle safety rules established by parents and society have a sensible foundation in the protection of riders against injury and death.

Among the concepts addressed in this mini-unit, the following are especially important:

- Careless bike riding can be very dangerous, leading to a wide variety of potentially serious--or even fatal--accidents and injuries.

- Bicycle safety rules--if followed carefully--can prevent serious bike accidents.

- Under given circumstances that are explainable by scientific concepts, accidents may become unavoidable; it is therefore wise to understand the concepts, so that one may avoid the circumstances.

- It is one's responsibility as a friend to tell another person when he or she is riding unsafely, but this can be done in different pleasant and unpleasant ways.

Finally, many times people ride their bicycles dangerously even when they know how to ride safely. Therefore, Mini-unit 3 discusses causes of unsafe bicycling behavior and is an important follow-up unit to this one.

MINI-UNIT 2 LESSON PLAN

Identifying and promoting safe bicycling practices

Activity #	*Activities*	*Class Time*
9 Spirit Master #2	DESCRIPTION: Students take a poll on their experiences with bicycles. GOAL: To know about different kinds of unsafe bicycling practices, the kinds of traffic rules cyclists are most likely to break, and the kinds of people who are most prone to engage in unsafe bicycling practices.	½-1 period
10[a]	DESCRIPTION: The class discusses bicycle safety. GOAL: To know the potential hazards of bike riding, the rules that should be followed to avoid these hazards, and the reasons these rules have been made.	½-1 period
11 Spirit Master #3	DESCRIPTION: Students engage in scientific experiments that illustrate bicycle safety concepts. GOAL: To know about scientific principles that apply to bike riding and bike safety.	½-1 period
12	DESCRIPTION: Students discuss what restrictions they would set for their children on riding bicycles. GOAL: To be aware of the validity of both one's own and one's parents' feelings about bicycle safety.	1 period

[a] This activity also appears in Mini-unit 1.

Total Class Time: 2½-4 periods.

ACTIVITY #9

Mini-unit Topic: Identifying Safe Bicycle Practices

Approximate Class Time: ½-1 period

Capsule Activity Description: Students take a poll on their experiences with bicycles.

Goal:

To know about different kinds of unsafe bicycling practices, the kinds of traffic rules cyclists are most likely to break, and the kinds of people who are most prone to engage in unsafe bicycling practices.

Concepts Treated:

- There are many different reasons why people ride bicycles safely or unsafely.
- Parental attitudes, peer pressure, and previous experiences (such as accidents) influence bicycling habits.
- Unsafe bicycle riding practices can be easily identified.
- Bicycling practices may vary according to the age and sex of the bicyclist and the purpose of the bicycling trip.

ACTIVITY

Before taking the experience poll, students anonymously write on a blank questionnaire their predictions concerning the results of a class poll.

Students take the poll anonymously. You can use the questionnaire provided on Spirit Master #2. Students may help you tabulate the results immediately afterwards on the blackboard. The class compares predictions with reality and discusses any discrepancies between the two.

Raise issues of how, why, and when people bicycle, using poll results as a take-off point. For example, do students who bicycle to school or work behave more or less safely than those who bicycle for fun? Do boys or men bicycle less safely than girls or women? You can also raise the issue of why students and other people ride more or less safely. Does bicycling behavior vary according to age, sex, parental attitudes and behavior, peer pressures, previous bicycling experiences, or other factors? See if your students can identify the safe and unsafe bike-riding behavior underlying Questions 5 through 14. Results of the poll can be compared with National Safety Council findings on the most common cyclist traffic violations which are listed below:

1. Riding in the middle of the street
2. Failure to yield right-of-way
3. Riding too fast
4. Disregarding traffic signs or signals
5. Riding against the traffic

Evaluation Method:

Students write a class profile of their bicycling experience.

Variation and Supplementary Activity:

Students can develop their own questionnaires, either as a class, in small groups, or individually. Other students can respond to the polls.

ACTIVITY #10

Mini-unit Topic: Identifying Safe Bicycle Practices

Approximate Class Time: ½-1 period

Capsule Activity Description: The class discusses bicycle safety.*

Goal:

To know the potential hazards of bike riding, the rules that should be followed to avoid these hazards, and the reasons these rules have been made.

Concepts Treated:

- Careless bike riding can be very dangerous, leading to a wide variety of potentially serious--or even fatal--accidents and injuries.
- Bicycle safety rules--if followed carefully--can prevent serious bike accidents; such rules include obeying normal traffic regulations, using or wearing special equipment, making an effort to concentrate on what the other fellow is doing on the road, and being sure to keep one's bicycle well maintained and in good condition.

ACTIVITY

Conduct a class discussion on bicycle safety. Such a discussion should consider the topics given below:

Basic information about numbers, types, and causes of bicycle-related accidents in the United States should be given:

Bicycle accidents cause the most injuries requiring emergency ward treatment each year (460,000).

There are 1 million bicycle-related injuries a year, including 60,000 concussions and 120,000 fractures.

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*This activity also appears in Mini-unit 1.

Bicycle accidents cause 1000 deaths a year--3 a day.

Twenty percent of bike accidents occur in rural areas.

Approximately 26 percent of bike fatalities occur at night.

Two-thirds of bicycle deaths involve children aged 5 to 14 years.

Bicyclists are not protected in spills or crashes, while auto drivers are.

Additional safety information is provided in the Consumer Product Safety Commission report at the end of this activity.

Major safety rules should be described:

Obey the laws.

Ride with the traffic; riding against traffic can result in running into cars coming out of driveways and roads, because auto drivers do not check for traffic coming down on the wrong side of the street; running into doors opened from parked cars for the same reason; running into cars on curves, since car drivers will hug the inner side of the road and cannot see a bike rider (nor can the bike rider see the car) until it is too late; compounding the speed of the car and the bike if they collide; and colliding with an automobile or other vehicle head-on.

Do not speed; speeding makes it harder to avoid pedestrians, potholes, glass, sand, drains, and other vehicles.

Signal all turns, so that cars don't run into you as you turn.

Don't hitch rides with other vehicles.

Don't ride sidesaddle or on the handlebars.

Don't weave in and out of traffic.

Special situations and equipment that can be mentioned include

Use lights, reflectors, and light-colored clothing when riding at night; the French two-way armband light is especially good.

Slow down in rainy weather to avoid skids (wet leaves are especially dangerous); brakes, especially caliper ones (hand brakes), function poorly in wet weather.

Wear protective helmet, particularly when riding on streets and highways.

Wear clips over long pants to keep cuffs from catching in gears; make sure shoelaces are short for the same reason.

Avoid traffic whenever possible.

Don't ride two or more abreast on the road; keep single file.

Avoid bicycles with high handlebars and small wheels--they are involved in a large percent of accidents because they are less stable.

Avoid trying tricks such as "wheelies" (riding on rear wheel only) and "jumpies" (slamming on the brakes so the bike will fly through the air).

Do not ride a bicycle that is too small or too large.

Concentrate while riding:

Watch for cars coming out of driveways and side streets.

During sunsets and rainy days, be especially careful of cars because they may not be able to see you.

Watch out for sudden moves by pedestrians.

Listen for cars coming up behind you.

Look out for opening doors on parked cars.

Watch out for potholes, drains, sand, and glass.

Be especially careful and observant at intersections.

Maintenance of bicycles is discussed in Activity 6, a class discussion on bicycle maintenance. Maintenance tasks include tire care, lubrication, tightening bolts and screws, adjusting brakes, keeping the bicycle dry and clean.

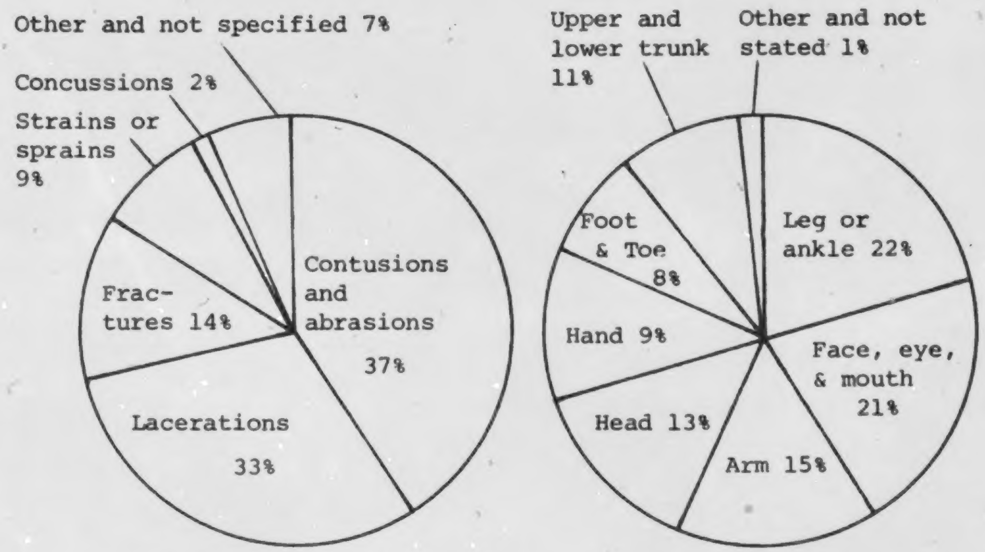
Bicycle registration: In an emergency, a bike registration may help police to contact parents or other relatives. This also may help to recover lost or stolen bikes.

Class discussion can follow on such issues as why many riders commonly ignore many of these safety rules and what can be done to encourage riders to practice these rules.

Evaluation Method:

Each student writes a first-person autobiographical account of a bike trip that involves as many safe riding practices as possible. Students exchange papers and one student identifies all the safety items included in the other student's paper.

Summary of NEISS Matrix Data on Bicycle Injuries
From Consumer Product Safety Commission



Type of injury

Body part injured

For 7/1/75 through 6/30/76 injury cases reported by the National Electronic Injury Surveillance System. Total bicycle injuries were 21,117 for this period.

During the 12-month period, July 1, 1975 through June 30, 1976, data on 21,117 injuries associated with bicycles were collected by the National Electronic Surveillance System (NEISS). The majority (70 percent) of the victims suffered either lacerations or contusions and abrasions. Fractures were third, accounting for 14 percent of the injuries. There is broad distribution among body parts injured. Most (74 percent) of the injuries were to children under 15. However, injuries to bike riders over 15 occurred with frequency and severity sufficient to merit consideration. Twice as many males as females suffered injuries.

Reasons for accidents were similar for both sexes in all age groups. Losing control was one of the most common factors cited in bicycle accident investigations. However, in many cases, loss of control followed some other factor (such as riding double, stunting, and foot slippage) or resulted from poor design or component failure. The chart below breaks down bicycle injuries by age and sex as identified by NEISS.

Age and Sex Distribution

Age	*Percent*	*Age*	*Percent*
0-2	1	20-24	5
2-4	9	25-34	4
5-9	31	35-44	2
10-14	33	45-54	1
15-19	13	55-64	1
		65+	Less than 1

Sex	*Percent*
Males	67
Females	33

ACTIVITY #11

Mini-unit Topic: Identifying Safe Bicycling Practices

Approximate Class Time: ½-1 period, plus out-of-class time

Capsule Activity Description: Students engage in scientific experiments that illustrate bicycle safety concepts.*

Goal:

To know about scientific principles that apply to bike riding and bike safety.

Concepts Treated:

- Understanding of certain scientific principles, such as friction and inertia, can help one understand the practical reasons for bicycle safety rules.
- Under given circumstances explainable by scientific concepts, accidents may become unavoidable; it is therefore wise to understand the concepts so that one may avoid the circumstances.

ACTIVITY

Students engage in one or more scientific exercises that illustrate bicycle safety concepts. Sample activities are discussed on the following pages. (Several of these activities require special rooms or equipment.)

Evaluation Method:

Students respond to your written or oral questions on what safety concepts the activities illustrate and how they apply specifically to bicycle safety.

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*Activities are taken from *A Teacher's Guide to Bicycle Safety Activity Projects* by the American Automobile Association.

Science Exercises

Friction. Involve students in a science research project on friction. Assign different facets of the project to separate groups or teams. Some of the questions which they might investigate, report on, and demonstrate include

- What is friction?
- How does friction make it possible to control a bicycle?
- What factors determine the amount of friction which is created between a wheeled vehicle and the surface or condition of the surface?
- What effect do bumps and hollows on the road surface have on braking?
- What causes a bicycle to skid?
- How does centrifugal force relate to friction in controlling a bicycle when turning?

Stopping Time. Ask students if it is possible to stop a vehicle, automobile or bicycle, "on a dime." Then ask them how far they think a bicycle travels from the instant the driver sees a hazardous situation (car door opening in front of him) until the bicycle can be brought to a full stop. Estimates on required stopping distances will vary widely. Students may know that the faster a vehicle is traveling the more distance is needed to stop it. They may realize that the type and the condition of the road are also significant factors. Generally, however, students will underestimate stopping distance.

Students can be helped to derive the data on reaction intervals from their own computations. The reaction interval is approximately three-fourths of a second. Students can compute the distance traveled per second at varying speeds by deriving (or simply using) the formula:

$$\frac{\text{Speed (in mph)} \times 5280}{3600} = \text{Feet per second}$$

Three-fourths of the number of feet per second will be the distance travelled during the reaction interval.

Braking Distance. Students can estimate braking distance. Pass out the minimum stopping distance chart on Spirit Master #3 and have students determine the relationship between braking distances and speed of vehicles. Students may discover that "braking distances are about proportional to the square of the driving speeds." Once the ratio is found, give the class the braking distance at 10 mph (9 feet), and ask them to approximate the distance at 5 mph.

Effect of Decreased Friction. The following demonstration measures the effect of decreased friction on driving control. Have a small student sit on a bicycle. Set the brake. (Two other students may be needed to help balance him.) Attach a large spring balance to the rear wheel. Have a strong student pull on the balance to find the force needed to slide the rear wheel on the floor. Record the results. Repeat the demonstration after wetting both the wheel and the floor area. Record the results.

Reaction Time. The class can demonstrate that the fastest possible reaction time between the eye and the foot is seven-tenths of a second. Fix two boards about a foot square so that they are exactly eight inches apart. A hole large enough for an ordinary marble to pass through easily is drilled in the top board. The marble will drop the eight inches in exactly two-tenths of a second. To try the experiment a person places his hand immediately under the hole, resting it on the bottom board. As soon as he sees the marble dropped, he is to remove his hand because the fastest possible reaction between eye and hand is always longer than that two-tenths of a second.

Night Visibility. Take the class into a room that can be darkened as completely as possible. If there are several rooms that are suitable, choose the largest one. Mark distances on the floor five or ten feet apart. First, select a student in dark clothes to go as far away as possible, and then approach the group slowly. As soon as any child sees him, he should raise his hand. Mark on the floor the distance at which the child first becomes visible. Choose another child wearing some article of white clothing. Again mark the spot where the child becomes visible. Relate this study to the need to wear white when driving a bicycle at night.

Momentum. Once wheels have received the initial start they continue to roll. The harder the pedal is pushed on a bicycle the faster the wheels go; why is this? On the playground, have a cyclist drive his bicycle at a moderate speed. Then tell him to take his feet from the pedals and coast until the bike stops. Let him try it again--this time from a slightly faster pace. Explain to the class that the act of coasting or rolling without mechanical help is due to momentum. The greater the speed, the more momentum and the harder it is to stop. Relate momentum to weight as well, and point out the importance of understanding momentum to safe cycling.

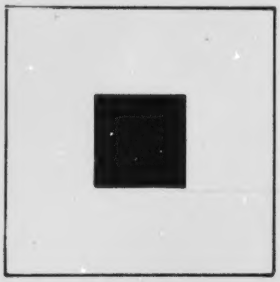
"Force of Impact" Concept. Use two skates to represent cars of equal weight and have two students roll them gently toward each other. Class notes the force of impact when the skates collide. Now ask the students to roll them with greater force; the impact will be greater and will probably make the skates roll backwards. When the students push the skates at each other as hard as they can, the skates will push back with greater force and probably turn over.

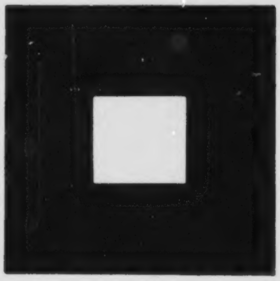
Compare this to cars going at high speeds and colliding on the highway. To measure the actual force of impact, it is necessary to consider the weight of the vehicles, the speed and the distance traveled following the collision. If the speed is doubled, the force of impact is four times as great. Because the two skates are the same weight and traveling at approximately the same rate, they will receive the same shock of impact.

Rolling a toy car against one skate will demonstrate what a slim chance a small light car has against a big truck on the road. Students can then better visualize what a cyclist is up against if he should collide with a motor vehicle.

Why Do Light Objects Look Larger than Dark Objects? When a ray of light strikes the light-sensitive elements within the eye, the effect of the light spreads out over a slightly larger area. When we look at a light object on a dark background, the image "spills over" into what should be a darkened portion of the retina. This makes light objects look larger to us. In reverse fashion, a dark object on a light background looks smaller than it really is because light from the background encroaches upon the darkened portion of the retina.

Cut identical small squares of white and dark paper. Place the white spot on the dark background and the same size dark square on the white background. Students note that the light piece on the dark background looks larger, indicating that white can be seen better than dark colors at night. Relate this to clothing and nighttime cycling.





Inertia. To answer the questions so often asked in case of an accident--Wasn't the driver watching? Was he going too fast?--the class can carry out a few simple experiments to demonstrate stopping distance and reaction time.

1. Walk rapidly in a line around the room looking straight ahead and try to stop when the signal is given. A fraction of a second will elapse before any student can stop completely. What does this mean in terms of a driver applying brakes and the distance even a slow car will travel in that split second?

2. Then experiment with moving objects. Can an object stop instantly when force is applied or when driving force is removed? Out on the playground have the students roll hoops, push express wagons, and drive bicycles (one or two at a time on a given course). What will happen at a signal to stop?

Explain that this failure to stop immediately is the scientific principle of inertia: "A moving object tends to keep moving in the same direction even when stopping force is applied. The heavier the object and the greater the speed at which it is moving, the longer it keeps in motion."

ACTIVITY #12

Mini-unit Topic: Identifying Safe Bicycle Practices **Approximate Class Time:** 1 period

Capsule Activity Description: Students discuss what restrictions they would set for their children on riding bicycles.

Goal:

To be aware of the validity of both one's own and one's parents' feelings about bicycle safety.

Concepts Treated:

- There are sometimes good reasons for what at first seems to be overstrictness on a parent's part concerning bicycle safety rules.
- Parents and children should sit down together and reasonably discuss the pros and cons of each bicycle rule that the parents set down.

ACTIVITY

Prior to this class, students are given a sheet instructing them to set rules for a son or daughter regarding bicycle safety. A sample discussion sheet is provided the page after next.

Students break into small groups and are given written instructions to

1. Read each other's papers.
2. Discuss and record the best rule and punishment for each safety problem.
3. If different rules or punishments were set for the son and daughter, justify these.

The groups report their results to the class, and respond to comments and questions from you and the class. Class discussion should include why safety rules should be set and how these rules should be explained to and discussed with children.

Evaluation Methods:

Students invite younger students to their class or small group and defend their own rules.

Students write the dialogue to scenarios in which a son (or daughter) argues over bicycle rules with his (or her) parents.

Variations and Supplementary Activities:

This activity can be a class discussion or a written homework assignment.

Members of the class can role-play parents and "defend" their rules. Students can use sample role profiles provided at the end of the activity or develop ones of their own.

Sample Role Profiles

At Night Without Lights

Parent

You do not allow your son to ride his bicycle after dark because there is no light on the bike. You haven't bought a light for the bike because you've been using it as an excuse for not letting him ride at night. You feel night riding is dangerous even *with* lights. Your neighbor has just called up to tell you that he caught *his* son riding in town without lights along with *your* son who was using a friend's bicycle that also had no lights. You're angry as your son walks into the house from his ride. What do you say?

Son or daughter

Your father (mother) won't let you ride your bicycle at night because it doesn't have a light on it. All your friends ride their bikes at night without lights and you can't see why you can't. It's not dangerous if you're careful, and none of your friends has been in an accident. Tonight a friend of yours suggested you ride to the Dairy Queen (movies, park, etc.) using his friend's bike. You agreed even though the bike had no lights because you would be laughed at if you refused. After the ice cream (movie, etc.) you left the bike off at your friend's house and walked home. You've just come in the house and you can see already that your father (mother) is mad about something.

Stolen Bicycle/Riding on Handlebars

Parent

You haven't been able to afford another bicycle for your daughter ever since her other one was stolen last month. What upsets you is that she has been riding around on the handlebars or sidesaddle of other kids' bikes; it's very unsafe, particularly with all the traffic around your neighborhood. But you understand that it's hard for your daughter not to ride sidesaddle because she won't be able to play with her friends if she doesn't. But you feel she will just have to wait until you can afford another bike. Today you drove downtown on an errand and saw your daughter riding on the handlebars of a friend's bike. Now it is evening and she has just come home for dinner. She has disobeyed you and put herself in danger. What do you say?

Daughter or son

Your bike was stolen a month ago and your parents say they can't afford to buy you another one yet. This makes it very hard for you to play with your friends because they all have bikes, and anytime they go somewhere the only way you can join in is to ride on someone's handlebars. But your parents have told you you are not allowed to do this--it's too dangerous, they say. This afternoon all your friends rode down to the movies (park, Dairy Queen, etc.) and you didn't want to be left out so you rode on Suzie's handlebars. Now you've just come home to dinner and you can see your parents (father) (mother) are upset about something. Did someone see you riding Suzie's handlebars?

You are the parent of a __-year-old (insert the appropriate age) son or daughter. What rules, if any regarding their use of their bicycles will you set? You may want to consider

Safety Issue	*Son*	*Daughter*	*Penalty for Disobeying*
Riding at night without lights			
Riding sidesaddle			
Riding on busy streets			
Riding far from home			
Riding in the rain			
Fooling around--jumping the front wheel, etc.			
Riding in the middle of the street			
Riding "no hands"			
Riding through red lights			
Speeding			
Other (specify)			

MINI-UNIT 3

INVESTIGATING WHY MANY PEOPLE RIDE DANGEROUSLY

In many cases, unsafe bicycle riding is not a matter of mere carelessness or of not knowing how to ride safely--problems the previous mini-unit addresses. Often dangerous bike riding stems from some other "behavioral" cause such as habit, the desire to take risks, peer pressure, and curiosity. This mini-unit deals with these affective causes of unsafe bicycling practices, making students aware of them and helping pupils to overcome them. In particular, the unit focuses on the role of peer pressure in promoting dangerous bicycling behavior.

The unit addresses the following concepts related to unsafe bicycling habits:

- Pressure to break bicycle safety rules is a fairly common thing and occurs often within peer groups.
- There are polite and effective ways of refusing peer group pressure to break bicycle safety rules, ways which might save both embarrassment and trouble later on.
- Sometimes there is peer pressure to ride safely, rather than unsafely.

MINI-UNIT 3 LESSON PLAN

Investigating why many people ride dangerously

Activity #	*Activities*	*Class Time*
13	DESCRIPTION: Students discuss why those people who ride unsafely continue to do so even when they know it is very dangerous. GOAL: To be aware of some of the psychological reasons people do not observe bicycle safety rules.	1 period
14	DESCRIPTION: Students explore ways to cope with pressures to ride recklessly by responding to hypothetical letters from students and adults in situations of conflict about bicycling. GOAL: To be aware that peer pressures to ride unsafely often occur and to know ways of dealing with such pressures.	1 period
15	DESCRIPTION: Students discuss why people exert pressure on others to ride safely or unsafely. GOAL: To be aware of some of the reasons why people feel the need to exert peer pressure.	1-1½ periods

Total Class
Time: 3-3½
periods.

ACTIVITY #13

Mini-unit Topic: Investigating Dangerous Biking **Approximate Class Time:** 1 period

Capsule Activity Description: Students discuss why those people who ride unsafely continue to do so even when they know it is very dangerous.

Goal:

To be aware of some of the psychological reasons people do not observe bicycle safety rules.

Concepts Treated:

- In many cases, unsafe bicycle riding is not a matter of mere carelessness, but stems from some other "behavioral" cause such as habit or the need to take risks.
- For some people, knowing bicycle safety rules is not sufficient to make them ride carefully, although they might not consciously intend to break these rules.

ACTIVITY

Students write brief (¼ page) accounts of things they personally have done or have seen others do in spite of the knowledge that these actions were clearly dangerous. Give one or two examples, such as overweight people eating fatty foods in a restuarant, people smoking, or automobile drivers not wearing seat belts.

During the following class session, students break into small groups and are given written instructions to

1. Read each other's papers.
2. Go through the actions described and decide and record *why* these people might have done dangerous things. Don't simply say "lack of will power" and leave it at that. Explain *why* they don't have the will power. Discuss what *other* reasons besides so-called lack of will power account for their behavior.

3. Decide and record which, if any, of these reasons might explain why some people ride bicycles in unsafe ways.

4. Decide and record if there are any *other* reasons why people might ride unsafely, even when they know they are endangering themselves, such as when someone is late and in a hurry or trying to gain speed before a hill. Does the lack of enforcement of bicycle safety regulations have a negative influence on bicycling practices?

Groups report results to the class and respond to questions and comments from you and the class.

Evaluation Method:

Students write a brief biography of an unsafe bicycle rider and explain why he or she rides dangerously, even though he or she is aware of the danger. The biography must include details about the rider's personality or life that explain his (or her) activity.

Variation and Supplementary Activity:

This activity can be a class or small group discussion.

ACTIVITY #14

Mini-unit Topic: Investigating Dangerous Biking

Approximate Class Time: 1 period

Capsule Activity Description: Students explore ways to cope with pressures to ride recklessly by responding to hypothetical letters from students and adults in situations of conflict about bicycling.

Goal:

To be aware that peer pressures to ride unsafely often occur and to know ways of dealing with such pressures.

Concepts Treated:

- Peer pressure to ride unsafely arises on many different occasions and for many different reasons.
- There are polite and effective ways of refusing peer group pressure to break bicycle safety rules, ways which might save both embarrassment and trouble later on.

ACTIVITY

Students explore ways of coping with pressures to ride unsafely by responding to hypothetical letters from people of various ages who are faced with such pressures.

Students break into small groups and each group is given the letters that appear on the following pages. Groups are instructed to act as consultant bureaus. Each bureau must answer each letter with a letter of advice. If they disagree among themselves they may include more than one approach in their letter but they should write only *one* letter to the advice seeker. When all letters have been answered, the various bureaus exchange letters until each group of students has read the responses of several other groups.

Have the class compare the various types of advice given by asking each bureau to explain why it advised a particular course of action and having other bureaus evaluate how effective they think that course of action would be and why.

Evaluation Method:

Each student writes a hypothetical letter about a peer problem he or she is encountering. Students exchange letters, and each student responds to one other student's letter.

Variations and Supplementary Activities:

Students can respond individually to the hypothetical letters shown on the following page and then compare their responses.

Students can role-play, calling problems illustrated by the letters into a hot line.

Students can send a "Dear Abby" letter to a local newspaper, and evaluate the response.

Sample Dear Abby Letters

Dear Abby:

I have banged up my bicycle twice carrying other kids on my handlebars, once so badly my parents had to get me a new bike. They've told me if I wreck it again, they won't get me another one. But my friends will think I'm a "fink" if I don't give them rides. What can I do?

Sincerely,

Torn

Dear Abby:

My husband and I go riding in the country weekends and enjoy it a lot, but he insists on riding on the wrong side of the street because he likes to see the traffic coming at him--he says it's safer. I think it's much more dangerous, but I don't enjoy riding on one side of the street while he's on the other. That's no fun, and it's even more dangerous to have our bikes on *both* sides of the street. What should I do?

Sincerely,

Uncertain

Dear Abby:

My friends all ride around the city at night on their bikes, and I hate to do this because by brother got a broken leg that he still limps on from a bicycle accident at night last year. My bike and my friends' don't have lights on them, and I can't afford to buy a light; it would get stolen right away anyway. I don't want to be left out of the "action" with my friends, but I'm afraid of getting crippled. I've already had two close calls with cars. What should I do?

Sincerely,

Afraid

ACTIVITY #15

Mini-unit Topic: Investigating Dangerous Biking **Approximate Class Time:** 1-1½ periods

Capsule Activity Description: Students discuss why people exert pressure on others to ride safely or unsafely.

Goal:
To be aware of some of the reasons why people feel the need to exert peer pressure.

Concepts Treated:

- Peer pressure is exerted for different reasons, at different times, by different people; some people make a habit of forcing others to do things, and some people do it only when they feel it is justified.
- Sometimes there is peer pressure to ride safely, rather than unsafely.

ACTIVITY

Students write a brief (½ page) response to the following instructions: Describe two times you have tried to pressure a friend to do something. What did you do to pressure him? Were you with other friends? Why did you want him to do what you were pressuring him to do?

During the following class period, students divide into small groups and are given instructions to

1. Read each other's papers
2. Discuss and record, for each situation, why the pressure is being exerted
3. Make a chart and list all the reasons why someone might pressure someone else to ride safely or unsafely
4. Discuss and record which, if any, of these reasons justify exerting pressure and which do not

5. Discuss and record whether and how individuals who exert unjustifiable pressure can be discouraged from doing so and resisted

Groups report conclusions to class and respond to questions and comments from class and teacher.

Evaluation Method:

Students role-play scenarios involving peer pressure.

Variation and Supplementary Activity:

This activity can be a class or small group discussion.

MINI-UNIT 4

STUDYING HOW TO BUY A BICYCLE

This mini-unit provides students with information about what kind of bicycle to buy for their purposes, what size and model to purchase for their height, and how to ensure that the bicycle they buy is economical and reliable. In addition, the unit stresses that bicycle purchasers should have safety as well as economic, esthetic, and comfort considerations in mind as they decide what kind of bicycle to purchase.

However, knowing *what* to look for in a bicycle does not always ensure that the proper purchase is made. Emotional factors also play a part in influencing the interpersonal dynamics between customers and salesperson. The unit therefore also addresses such issues as customer embarrassment at examining the goods carefully before buying and coping strategies to use with high-powered salespersons who may pressure customers to purchase models or accessories they would prefer not to buy. This particular consumer skill is a valuable one that students can carry over to the purchase of all consumer products.

Other key concepts this unit addresses are the following:

- The buyer should be sure that the store from which he buys is reputable and will give him good service in the future.
- Potential purchasers of expensive items such as bicycles are fully justified in being very careful about the product they buy.
- There are certain polite ways in which to ask questions about bicycle characteristics or defects and in which to handle difficult salespeople.
- Salespeople can often be extremely helpful when the person trying to buy a bicycle does not know what features he wants or what model would be best for him.

You may wish to supplement this Mini-unit with Activity 33, which is found in Mini-unit 8. You will also find Mini-unit 5, "Learning to Maintain a Bicycle," an appropriate unit to follow this one.

MINI-UNIT 4 LESSON PLAN

Studying how to buy a bicycle

Activity #	*Activities*	*Class Time*
16[a] Spirit Master #1	DESCRIPTION: Students discuss what bicycle characteristics purchasers should consider when deciding what bike to buy. GOAL: To know what factors should be taken into consideration in buying a bike, including the type of use to which the bike will be put, the most desirable style and the price.	½-1 period
17	DESCRIPTION: Students role-play scenarios involving bicycle purchasers and salespeople. GOAL: To know how to deal effectively with salespeople when buying a bike.	1 period
18[a]	DESCRIPTION: Students discuss embarrassment at carefully examing a bicycle for defects and characteristics before purchasing it. GOAL: To cope effectively with feelings of self-consciousness that may result from being a cautious shopper.	½-1 period
19	DESCRIPTION: Students analyze bicycle warranties. GOAL: To know what one can and cannot depend on from a bicycle warranty.	2-3 periods

[a] This activity also appears in Mini-unit 1.

MINI-UNIT 4 LESSON PLAN (CONTD.)

Studying how to buy a bicycle

Activity #	*Activities*	*Class Time*
20	DESCRIPTION: Students role-play scenes in which children try to persuade their parents to buy a bicycle for them. GOAL: To be aware that parents sometimes have legitimate reasons for not buying a new bicycle for their children, just as children have legitimate reasons for wanting one.	1-1½ periods

Total Class
Time: 5-7½
periods.

ACTIVITY #16

Mini-unit Topic: Buying a Bicycle

Approximate Class Time: ½-1 period

Capsule Activity Description: Students discuss what bicycle characteristics purchasers should consider when deciding what bike to buy.*

Goal:

To know what factors should be taken into consideration in buying a bike, including the type of use to which the bike will be put, the most desirable style, and the price.

Concepts Treated:

- There are many questions that a person should ask him or herself before buying a bike, including what he or she will use it for, how much he or she has to pay, what kind of accessories are needed, and what style of bike is most comfortable and reliable.
- The buyer should be sure that the store from which he buys is reputable and will give him good service in the future.
- The final step in bike buying involves a careful check of the bike that is actually selected, including a test ride

ACTIVITY

Students write responses to the following letter:

Dear Consumer Advisor:

I am 15 years old and want to buy a bicycle. My old bicycle which I have had since I was a kid doesn't seem to be good enough for my needs anymore. I plan to use it to bike to school, three miles away and up a steep hill. I also need something to get me to work in a hurry. I get out of school at 2:30 and I have to be at work by 3:00 p.m. The place I work is three miles from school which isn't very far but traffic is often heavy. My parents will give me $65 for a new bike and I have $50 saved in the bank. What kind of bike should I get? How many gears? Racing or conventional? Racing handlebars or regular handlebars? What brand? How much should I pay?

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*This activity also appears in Mini-unit 1.

Sincerely,

Janice Wolff

Following the class, the students break into small groups and are given written instructions to

- Discuss whether they disagreed on the type of bike Janice should buy and, if so, why
- Agree on what kind of bike she should buy and why
- Decide, in general, how someone should go about assessing what kind of bike he or she should buy--what factors need to be taken into account, such as whether the purchaser plans to bike up steep hills, wants a rugged bike for dirt roads, will be exposing an expensive bike to theft risks, wants minimum upkeep costs, etc.

Groups report their conclusions to the class and respond to comments and questions from the class. Compile a list on the blackboard of purchase criteria the groups have come up with and try to gain a class consensus on what they should be--such as plans to bike up hills, plans to ride long distances, etc. You can also use the purchase consideration chart provided on Spirit Master #1.

The following lists include steps in determining what kind of bike to buy, deciding where to buy the bike, and actually buying the bike. You might bring some of these up if the class fails to mention them. The steps in determining what kind of bike to buy include

1. Decide what bike will be used for--short trips, long trips, commuting, recreation, up hills, over rough terrain, racing, touring, etc.
2. Decide how long the bike will be owned. This is a consideration in particular with bicycles for small children.
3. Select the brand of bicycle. It is useful to compare the repair records of various bike brands and models.
4. Choose a style--racing, banana seat, conservative, etc.
5. Determine number of speeds or gears--one, three, five, or ten--and how gear ratios influence hill-climbing capabilities.

6. Select handlebars--racing, conventional, or high-rise.

7. Select price range--$50 to $100, $100 to $200, over $200.

8. Select proper size.

9. Determine the availability of replacement parts and services.

Three steps are involved in deciding *where* to buy a bike:

1. Compare bike prices in different stores, including any assembly charges.

2. Determine stores' reputation for selling quality products and making competent repairs.

3. Consider whether the bike should be bought from a store that can and will repair it competently and promptly.

Some of the steps involved in actually buying a bike include

1. Examine the tires--are they sew-ups or clinchers? Are they in good condition? (Clinchers are the most common and durable and the easiest to repair.)

2. Select the right size frame.

3. Test ride the bicycle.

4. Check the frame for defects and type of construction--welded or brazed. (In better bikes frames are usually brazed. Welding, which is done at high temperatures, robs metal of its strength.)

5. Examine the warranty.

Selecting accessories can be discussed in terms of why they are desired or needed--for safety, convenience, or aesthetic reasons. Examples of accessories include lights (generator or lamp? on the bicycle, worn on the rider, or both?); locks; saddle bags, baskets, and book racks; tire pumps; tire pressure guages; water bottles; gloves; kickstands; toe clips, pant-cuffs clips; chain shields that prevent trousers from getting caught in chains; child seats; tire-repair kits; cloth handlebar tape; car racks for transporting bikes; and bicycle safety flags for increased visibility.

Evaluation Method:

Students write their own letters to a consumer advisor, describing someone who plans to buy a bike. Students then exchange letters and each student responds to one other student's letter in terms of what kind of bike he or she should buy.

Variations and Supplementary Activities:

Students can interview parents and other bicycle purchasers on how they decided what kind of bicycle to buy.

Students can interview bicycle salespeople on what kinds of bikes most customers buy and why.

Students can discuss and read about accessories they should or might want to buy.

The class can discuss how the sequence of tasks to follow in determining which bicycle to buy and buying one can be varied from the sequence offered in this activity.

Discussion can focus on what to examine in buying a used bicycle, such as condition of the frame, how well the gears work, presence of rust, tire condition, and the number of accessories included.

Students can fill in a copy of the purchase considerations chart (Spirit Master #1) for their "ideal" bike and then discuss their selection criteria.

ACTIVITY #17

Mini-unit Topic: Buying a Bicycle

Approximate Class Time: 1 period

Capsule Activity Description: Students role-play scenarios involving bicycle purchasers and salespeople.

Goal:

To know how to deal effectively with salespeople when buying a bike.

Concepts Treated:

- Salespeople can often be extremely helpful when the person trying to buy a bicycle does not know what features he wants or what model would be best for him.
- In cases in which the purchaser knows the type of bike he desires and has thoroughly researched his needs in a bicycle, he should not allow himself to be intimidated by a salesperson who appears to be "knowledgeable."
- There are polite and effective ways of dealing with salespeople.

ACTIVITY

Students role-play scenarios involving consumers buying bicycles from salespeople. Sample role profiles are provided on the following pages. After each role-play, participants read their role profiles to the class and discuss the feelings they had while role-playing; in particular, "salespeople" discuss their emotional reactions to different approaches on the part of "customers" in terms of which approaches are most likely to result in salespeople being most helpful to the customer. Nonparticipants discuss what they would have said and done had they been involved. The class should be encouraged to write its own role profiles.

After completing the role-plays, the class discusses different approaches and responses used by purchasers and salespeople and which of these seemed to be most effective.

Evaluation Method:

Students compose the dialogue to one or more scenarios, writing the parts of both the customer and the salesperson.

Variation and Supplementary Activity:

This activity can be held as a class or small group discussion.

SAMPLE ROLE PROFILES

Buying Yourself a Bicycle

Purchaser

You want to buy a bicycle but you don't know whether to get a one, three, or ten speed or how much money to pay. You plan to use your bike for weekend trips of 5 to 15 miles, but that's about it. There's a small chance you might use it some days to commute to work, but that's not likely. You have come for advice to the Best Buy Bicycle Shop. You enter and go up to a salesperson. What do you say?

Salesperson

You work in the Best Buy Bicycle Shop. You sell all kinds of bikes. You want two things: lots of sales, preferably of expensive bikes, and satisfied customers. Sometimes you have to decide whether you want a satisfied customer buying a less expensive bike or an unhappy customer buying a more expensive one. A customer who looks very uncertain has just approached you. How will you handle his (her) questions?

Parent and Son (or Daughter)

Purchaser

You want to buy a new bicycle for your 11-year-old son (daughter). He has outgrown his old bike and wants you to get him a fancy high-rise bike with a banana seat and stick shift. You think they're unsafe, too expensive, and don't last too long. Besides, your son will try to do all kinds of unsafe tricks and games on a high-rise. You want to get him a three-speed English bike that you feel is safer. You have decided to ask a salesperson for advice, taking your son with you. You both have just walked into the Swell Sales Bicycle Store and gone up to the salesperson. What do you say?

Son (daughter)

You have outgrown your old bike and want your father (mother) to buy you a new, fancy high-rise bike with a banana seat and stick shift. That's the kind of bike all your friends have, and you like the looks of it. It makes you feel like you're riding a motorcycle--in fact, as soon as you're old enough and have the money, that's what you plan to buy. Your father doesn't like the high-rise bikes because he thinks they're poorly made and unsafe. You think they're as safe as any other bike. And besides, you really can't do as many tricks on an English bike as you can on a high-rise--although you can't tell your father (mother) that! You've come with your father shopping for a bike. You've both just entered the Swell Sales Bicycle Store and walked up to a salesperson. What do you say?

Salesperson

You are a salesperson in the Swell Sales Bicycle Shop. You are an expert in children's bikes. It's so much fun when a parent and child come in looking for a bike and argue over what kind to buy. Usually, the kid wants the more expensive bike. But you have to watch yourself. If you side with the kid, the parent may get angry with you and buy the bike somewhere else. A parent and child are coming over to you right now. You wonder what kind of disagreement they'll have!

How Expensive?

Purchaser

You have decided to buy a medium-priced three-speed bike, for around $75. You want it to run errands and make short trips, nothing special. You walk into Rodney's Rugged Bike Shop to buy a Modesto Model 99Z. You walk up to the salesperson. What do you say?

Salesperson

You are a salesperson in Rodney's Rugged Bike Shop. You get a commission on every bike you sell--and the more expensive the bike, the larger your commission. In addition, you are tired of seeing customers buy what you feel are cheap, clumsy bikes when they could buy a decent ten-speed for $125 or $175 and have a bike that will last and give a comfortable ride. Yet customers keep coming in asking for bikes like the three-speed Modesto 99Z, which sells for $70 when for only $50 more they could buy a ten-speed bike like the Superba XKG. A customer has just come in the store and comes up to you. How will you handle him if he too wants a bike like the Modesto 99Z?

Accessories

Purchaser

You want to buy a light for your three-speed bicycle because you've realized how unsafe it is riding at night without one. But you have no idea what kind of light to get--expensive or cheap, generator kind or battery powered, with reflectors or without, etc. You've just walked into Aaron's Accessories Shop and over to a salesperson. What do you say?

Salesperson

You work in Aaron's Accessories Shop and sell bicycle accessories like saddle bags and lights. You carry a complete line of items from cheap to expensive. Often customers come in and don't know what kind of accessory to get. You try to help them make a wise decision. Here comes a customer right now who looks as through he (she) needs some advice.

ACTIVITY #18

Mini-unit Topic: Buying a Bicycle

Approximate Class Time: ½-1 period

Capsule Activity Description: Students discuss embarrassment at carefully examining a bicycle for defects and characteristics before purchasing it.*

Goal:

To cope effectively with feelings of self-consciousness that may result from being a cautious shopper.

Concepts Treated:

- Potential purchasers of expensive items such as bicycles are fully justified in being very careful about the product they buy.
- Salespeople can sometimes be less than helpful when a young person is attempting to make an important purchase and sometimes may even be troublesome.
- There are certain polite ways in which to ask questions about product characteristics or defects and in which to handle difficult salespeople.

ACTIVITY

Students write a brief description of any experience in which they intended to purchase a product but felt embarrassed or nervous about examining it carefully before buying. Students include in their account

- Whether they did examine it, and how carefully
- How the salesperson responded (with anger, annoyance, consideration, additional information; refusal to serve the customer), and why
- Whether they found any defects or unwanted or missing part

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*This activity also appears in Mini-unit 1.

- What they did about any defects or unwanted or missing part

- Whether they purchased the product and why or why not

Students then break into small groups and are given written instructions to discuss

1. All the *reasons they were embarrassed* or nervous, such as concern about the salesperson getting angry; their revealing ignorance about the quality of the product, about what they wanted in the product, or about whether they really wanted to buy the product; other people waiting for service who were getting angry at the delay, or other influences that customers may have on a potential buyer; their need for the product, regardless of defects (e.g., because of the shortage of available bicycles); and not knowing what to do if a defect or missing part was discovered.

2. Methods customers can use to avoid feeling embarrassed in such situations, or to be motivated to examine products carefully despite their embarrassment, such as knowing in advance exactly what to examine in a bicycle before buying; knowing exactly what kind of bike one wants to buy; planning in advance what to do if a defect is found, unwanted parts are present, or a desired part is missing (such as demanding a discount, a new product, or that the defect be repaired or the missing item included); identifying methods by which to exert influence over salespersons (such as asking for the supervisor or indicating that you might shop at a competitor's store or write to the manufacturer or distributor).

The groups report their conclusions to the class and respond to questions and comments from you and the class.

Evaluation Method:

Students test their learning in subsequent purchasing situations (not necessarily related to bicycles) and report their results to the class.

Variations and Supplementary Activities:

Students can role-play scenarios in which they ask questions about bicycles before buying.

This activity can be held as a class discussion.

Students can research the recommendations of consumer protection groups on how to examine bicycles before buying.

ACTIVITY #19

Mini-unit Topic: Buying a Bicycle

Approximate Class Time: 2-3 periods, plus out-of-class time

Capsule Activity Description: Students analyze bicycle warranties.

Goal:
To know what one can and cannot depend on from a bicycle warranty.

Concepts Treated:

- Before purchasing a new bicycle, it is important to read the warranty to determine what it does and does not guarantee in terms of repairs, etc.
- Different bicycle manufacturers offer different kinds or amounts of service after purchase, and this should enter into one's decision concerning the type of bicycle to buy.

ACTIVITY

You or a small group of students (or both) obtain warranties from bicycle and department stores, or by asking salespeople what the guarantees are for the bikes they sell. Most warranties are contained in the bicycle service booklets that are distributed free. The group then analyzes the warranties in terms of such questions as "Are they *full* or *limited?*" If they are full, this means

A defective product will be fixed (or replaced) free, including removal and reinstallation if necessary.

It will be fixed within a reasonable time after you complain.

You will not have to do anything unreasonable to get warranty service (such as ship a piano to a factory).

The warranty is good for anyone who owns the product(s) during the warranty period.

If the product(s) can't be fixed (or hasn't been after a reasonable number of tries), you get your choice of a new one or your money back.

Limited warranties give you less than full warranties. This means something is missing. Other questions include

- Are all the parts of the product(s) covered by the warranties (or service contract)? Would the parts that are not covered be expensive to fix? Are they likely to break?
- Would you have to pay any of the repair costs?
- How long do the warranties last?
- Do you get a different amount of protection for different parts of the product(s)? Or for different periods of time?
- Are the warranties for just the first purchaser?
- What do you have to do to get warranty service? (Such as mailing or shipping the product somewhere.)
- Do the warranties give any conditions for guaranteeing repair work, such as not abusing the bicycle or having it repaired only in certain shops?
- Do the companies giving the warranties have a good (or bad) reputation for living up to their warranties?
- What services do the warranties not include that you would like to see in them?
- Is there any misleading information in the warranties that might lead a buyer to expect more than he will get?
- How good is a warranty if the dealer won't honor it?

Students clear up any uncertainties concerning what the warranties do and do not offer by talking with bicycle salespeople and reading the information about the warranty law provided at the end of this activity.

The group prepares and presents reports to the class and responds to questions and comments from you and the class.

Evaluation Method:

Students respond to your written or oral questions concerning interpretation of bicycle warranties.

Variation and Supplementary Activity:

Students can write and compare their own ideal warranties.

Is There a Law Covering Warranties?

Yes!

It's the Magnuson-Moss Warranty Act, and it can help you get a good deal on warranties. The Warranty Act helps *before* you buy, by letting you see the warranties. Starting January 1, 1977, warranties on consumer products costing more than $15 must be available for you to look at before you buy--so you can comparison shop and get the best warranty. And, the Warranty Act helps *after* you buy, by making it easier for you to force companies to keep their warranty promises.

Some Basic Points

Under the Warranty Act, all warranties must be easy to read and understand. They must be written in ordinary language, not "legalese." Fine print isn't allowed.

Every term and condition of the warranty must be spelled out in writing. If it isn't there, it isn't part of the warranty.

Beware of spoken explanations of the warranty. What the salesclerk *says* about the warranty won't count when it comes time for warranty service. Check what's *written* in your warranty.

Note: The Warranty Act doesn't make a company give a warranty (though some state and Federal laws do require warranties on certain products). If you buy a product "as is," you will have to pay for any repairs.

The Difference Between Guarantees and Warranties

There is *no* difference--in the case of product warranties. "Warranty" and "guarantee" mean the same thing--a promise by a manufacturer or a seller to stand behind its product. But there is a *big* difference in the kinds of promises you can get.

What Kinds of Warranties Are There?

Written Warranties

There are two types of written warranties: *full* and *limited.* These words have been given special meanings by the Warranty Act.

Full Warranty. The label "full" on a warranty means all this:

- A defective product will be fixed (or replaced) free, including removal and reinstallation if necessary.
- It will be fixed within a reasonable time after you complain.
- You will not have to do anything unreasonable to get warranty service (such as ship a piano to the factory).
- The warranty is good for anyone who owns the product during the warranty period.
- If the product can't be fixed (or hasn't been after a reasonable number of tries), you get your choice of a new one or your money back.

Check if a warranty says "full"--it's a quick way to know if you're getting a lot of protection.

But there is one important thing the word "full" doesn't promise. A full warranty doesn't have to cover the whole product. It may cover only part of the product, like the picture tube of a T.V. Or it may leave out some parts, like tires on a car. If your warranty covers only the picture tube, and the sound goes bad, you pay. *Always check what parts the warranty covers.*

Limited Warranty. A warranty is "limited" if it gives you anything less than what a full warranty gives. "Limited" means "be careful--something's missing."

For example, a limited warranty may

- Cover only parts, not labor
- Allow only a pro-rata refund or credit (you get a smaller refund or credit the longer you had the product)
- Require you to return a heavy product to the store for service
- Cover only the first purchaser
- Charge for handling

A product can carry more than one written warranty. For example, it can have a full warranty on part of the product and a limited warranty on the rest.

Implied Warranties

"Implied warranties" are rights created by state law, not by the company. All states have them.

The most common implied warranty is the "warranty of merchantability." This means that the seller promises that the product you buy is fit for the ordinary uses of the product. For example, a reclining chair must recline; a toaster must toast. If it doesn't, you have the legal right to get your money back.

Another implied warranty is the "warranty of fitness for a particular purpose." If you buy a product relying on the seller's advice that it can be used for a special purpose, then this advice may create a warranty. For example, a seller who suggests a certain sleeping bag will be suitable for zero degree weather warrants that the sleeping bag will be suitable for zero degrees.

Implied warranties come automatically with every sale, even though they are not written out. If a seller says nothing about warranties, you get the implied warranties. A seller can usually get out of these warranties by stating--*in writing*--that it gives no warranty at all ("as is"). But a seller can't give a written warranty and get out of the implied warranties. If you get a written warranty, you get the implied warranties too. The implied warranties may give you protection the written warranty doesn't give.

Service Contracts

Service contracts (sometimes wrongly called warranties) are not warranties at all. Warranties come with a product at no additional charge. Service contracts give extra protection for an extra fee.

With a new product you usually get a written warranty and the implied warranties too. So compare the warranties and service contract carefully to see how much the service contract really adds.

Other Warranties

Spoken promises and advertising claims can be warranties too. You have a legal right to get what the company promises. These kinds of warranties are covered only by state law, not Federal law.

Consequential Damages

Normally, your warranty rights under all these warranties include the right to "consequential damages." This means the company must not only fix the defective product but also pay for any damage the product did. If your freezer breaks down and the food in it spoils, the company must pay for the food you lost. However, a company can usually get out of this extra responsibility by saying in the warranty that it does not cover consequential damages. This can be done in both full and limited warranties.

Sometimes you will care more about the consequential damages than the product itself. If your car's antifreeze is faulty and the engine block cracks, you may get back only the cost of the antifreeze. You should check if consequential damages are excluded and think about how much damage the product can cause if it doesn't work.

If you are physically injured by a defective product, you usually have a right to get money damages from the company. See a lawyer about this.

If the Problem Isn't Solved

Your warranty rights don't run out at the end of the warranty for problems you complained about during the warranty period. The company must still take care of those problems, no matter how long it takes.

Here's what to do if you have trouble.

One: Make sure you have contacted the right person in the company. If the manufacturer gives a warranty, don't stop with the seller. Write (or call) the manufacturer at the address given in the warranty. Explain exactly what you think it owes you under the warranty--repair, replacement, refund, or consequential damages.

Two: Contact a local consumer protection office or complaint center. It may be able to help you and tell you more about your rights. Check your phone book under the name of your city, county, or state government.

Three: In some cases there will be an organization that hears and decides disagreements informally, if both sides are willing. The company or a local consumer protection office can tell you who to contact. Check your warranty--this may be a required first step in solving the problem.

Four: If the amount of money involved is small, you can go to a small claims court. There costs are low, procedures are simple, and a lawyer is usually not needed. The clerk of the small claims court can tell you how to bring your lawsuit.

Five: If your product was manufactured after July 4, 1975, you can sue the company under the Warranty Act. If you win you can get money damages or any other type of relief the court decides to give you. This includes the cost of bringing the lawsuit and your attorney's fees.

If the product was manufactured before July 4, 1975, you can still sue the company under state law. You should contact a lawyer or consumer protection office for information.

Six: Report violations of the law to the Federal Trade Commission. The FTC *cannot* help you directly with a warranty problem. But it needs to know if companies are obeying the warranty rules. Write the FTC if a company does not make warranty information available.

How You Can Use Warranties

Read warranties before you buy to get the best deal. It may be worth it to pay more for a product with a better warranty. The extra money is like insurance--it protects you against the chance of a big repair bill. Comparing warranties now can save you money and headaches later.

Read the warranty when a problem come up. The warranty is a contract that spells out your rights. Show the warranty to the company if it doesn't do what it promised.

Keep your sales slip with your warranty. You may need it to prove the date you bought the product, or that you were the original purchaser.

Checklist: What to Look For

- Is it "full" or "limited"? (Warranties only.)
- Are all parts of the product covered by the warranty (or service contract)? Would the parts that are not covered be expensive to fix? Are they likely to break?
- Would you have to pay any of the repair costs?
- How long does the warranty last?
- Do you get a different amount of protection for different parts of the product? Or for different periods of time?
- Is the warranty for just the first purchaser? Are you likely to sell the product, or give it as a gift, during the warranty period?
- What do you have to do to get warranty service? (Such as mailing or shipping the product somewhere.)
- Is there anything you have to do to keep the warranty in effect? (Such as proper maintenance.)
- Does the company giving the warranty have a good (or bad) reputation for living up to its warranty?

Extra Questions for Service Contracts

- What extra protection does the service contract give you that the warranties don't give?
- How much does it cost? Is it worth it?
- If you change your mind, or sell the product, and you want to cancel the service contract, can you get any of your money back?
- Who is responsible for performance? The manufacturer? The dealer? Someone else?

The Federal Trade Commission enforces the Warranty Act. To report violations of the law, write to the Federal Trade Commission, Warranties, Washington, D.C. 20580 or one of the addresses below. The FTC does not handle private cases, however.

For copies of this pamphlet write to: Federal Trade Commission, Legal and Public Records, Room 130, Washington, D.C. 20580.

•*Atlanta Regional Office,* 1718 Peachtree Street, N.W., Suite 1000, Atlanta, Georgia 30309 (404) 881-4836 •*Boston Regional Office,* 1301 Analex Building, 150 Causeway, Boston, Massachusetts 02114 (617) 223-6621 •*Chicago Regional Office,* Suite 1437, 55 East Monroe Street, Chicago, Illinois 60603 (312)353-4423 •*Cleveland Regional Office,* Room 1339, Federal Office Building, 1240 East 9th Street, Cleveland, Ohio 44199 (216) 522-4207 •*Dallas Regional Office,* 2001 Bryan Street, Suite 2665, Dallas, Texas 75201 (214) 749-3056 •*Denver Regional Office,* Suite 2900, 1405 Curtis Street, Denver, Colorado 80202 (303) 837-2271 •*Los Angeles Regional Office,* 11000 Wilshire Boulevard, Room 13209, Los Angeles, California 90024 (213) 824-7575 •*New York Regional Office,* 22nd Floor, Federal Building, 26 Federal Plaza, New York, New York 10007 (212) 264-1207 •*San Francisco Regional Office,* 450 Golden Gate Avenue, Box 36005, San Francisco, California 94102 (415) 556-1270 •*Seattle Regional Office,* 28th Floor, Federal Building, 915 Second Avenue, Seattle, Washington 98174 (206) 442-4655 •*Washington, D.C. Regional Office,* Gelman Building, 2120 L Street, N.W., Washington. D.C. 20037 (202) 254-7700.

ACTIVITY #20

Mini-unit Topic: Buying a Bicycle

Approximate Class Time: 1-½ periods

Capsule Activity Description: Students role-play scenes in which children try to persuade their parents to buy a bicycle for them.

Goal:

To be aware that parents sometimes have legitimate reasons for not buying a new bicycle for their children, just as children have legitimate reasons for wanting one.

Concepts Treated:

- Although children often have good reasons for wanting a new bicycle, parents sometimes have equally good reasons for feeling that buying the new bicycle is unnecessary or even wasteful.
- Parents and children should sit down and have an honest discussion about buying a new bike, so that each will understand the other's viewpoint, leading (one hopes) to a reasonable conclusion.

ACTIVITY

Students role-play scenarios in which parents are asked by their children to buy a bicycle for them. Sample role profiles are provided on the next pages. After each role play, participants read their profiles to the class and discuss the feelings they had while role-playing. Nonparticipants discuss what they would have said and done had they been involved. The class should be encouraged to write its own role profiles.

After completion of the role plays, list on the blackboard the possible responses parents can offer to children who ask for bicycles and the possible reasons children can give for why parents should buy them a bicycle.

Evaluation Method:

Students write a section of a *Guidebook for Adults*, describing how adults should handle the requests of children who ask for new bicycles.

Variations and Supplementary Activities:

This activity can be a class or small group discussion.

New role profiles can be created by varying the age and sex of the children; the type of bicycles they want; why they want the new bicycle; or why the parents are reluctant or unwilling to buy a new bicycle or a particular kind of bicycle.

SAMPLE ROLE PROFILES

Which New Bike?

Daughter

You are 13 years old and have outgrown your old bicycle. You want your parents to buy you a new ten-speed bicycle because they are more fun and easier to ride up hills. Most of your friends have ten-speed bikes, too, and you feel left out because you don't have one. You've just come in the house after tipping over on your old bike because it's too small for you. Your parents are in the kitchen having coffee. What do you say to them?

Parent

Your daughter has been riding around on a bicycle that she is getting too big for. You've been expecting her any day now to tell you she wants a fancy new bike. You feel that all she needs is a regular three-speed bike, even though you could probably afford a more expensive one. But she'll just outgrow this new bike in a couple of years, too, so why spend the money on an expensive bike now when she'll need another one in a few years? Your daughter has just come into the kitchen looking as though she wants something from you.

Can We Affort It?

Son

You have a run-down bicycle that is bent out of shape and is almost impossible to ride. You have to walk it up hills, it's in such bad shape. You've mentioned to your father several times that he should buy you a new bike, but every time you do he says, "We can't afford to buy a new bike just because your old one isn't perfect. Why, when I was your age (14) I never even had a bicycle. I walked everywhere I wanted to go." But last week your father bought a second-hand Buick Electra for $3200 when all he needed was a Ford or a Chevrolet. And he says he can't afford a new bicycle, which would cost only $75. You've just come in from another rotten bike trip, and your father is sitting in the living room watching T.V. You're ready to really put it to him. What do you say?

Father

Your son has complained to you several times that his bike isn't good enough for him; it's broken down and hard to ride. You realize it's not the best bike in the world, but it'll do for another year or so. Why does your son at age 14 need a fancy new bike for the short trips he makes? Besides he'll just scrape and bang up a new bike and it'll look like his old one in two weeks. Anyway, you really can't afford a new bike. You have to make payments on the second-hand Buick Electra you just bought for $3200, so you're really strapped for money. At least you bought a good car that will last a long time and not cost you a lot in repairs, though. Your son has just come into the living-room where you're watching T.V. He looks pretty mad about something.

What's in Style?

Son

You are 11 years old and really know how to enjoy life and impress your friends. But you've got this beat up old bike that your friends make fun of and you hate to ride. ("Hey, Joe, you'd have to pay someone to steal that piece of junk!" they yell at you.) This morning, your best friend showed up at school with a brand new bicycle with a banana seat, high handlebars, a roll bar, and a five-speed stick shift. It made you feel awful. You've just come home now from school ready to *order* your father (mother) to buy you one like your friend's. What do you say?

Parent

You have an 11-year-old son who is pretty wild sometimes, and you have to keep a sharp eye out on him. Only last week he swore at a neighbor who was complaining that he and his friends were making too much noise playing stick ball in his back yard. Your son has an old-fashioned bicycle with regular handlebars and thick tires. He's been pestering you to get him one of those new flashy bicycles that have banana seats, high handlebars, and five-speed stick shifts. You're afraid that if you get him one, he'll treat it like a racing motorcycle and go around doing all kinds of reckless things. Besides, it will probably get stolen in a week. So you have no intention of buying him that kind of bike, although you feel he may be ready for a new bike of some kind. Your son has just come home from school looking as though he wants to talk to you about something.

MINI-UNIT 5

LEARNING TO MAINTAIN A BICYCLE

Many people neglect to maintain their bicycles in top operating condition. Others would like to keep their bicycles in good shape but feel ignorant about how to do so or imagine the work required is too time consuming, complicated, or messy. This mini-unit is directed at all these individuals and will help them realize the importance of maintaining bicycles and of how to do so efficiently and easily.

The unit stresses not only that proper bicycle maintenance is necessary to provide maximum riding comfort and to preserve the life of the vehicle but also that maintenance is critical to ensure bicycling safety. Loose brakes, for example, can be as great a riding hazard as speeding.

Finally, this mini-unit seeks to make students aware of the severity of the bicycle theft problem and of measures they can take to minimize, if not eliminate, the chance of their own bicycle being stolen.

This mini-unit also addresses the following important concepts:

- Knowledge about the different parts of the bicycle, and their purpose, is essential to the person who needs or wants to take proper care of his bicycle.
- Certain bicycle malfunctions are closely or directly related to lack of proper maintenance.

MINI-UNIT 5 LESSON PLAN

Learning to maintain a bicycle

Activity #	*Activities*	*Class Time*
21 Spirit Masters #4 and #5	**DESCRIPTION:** Students play a card game that requires them to identify the parts of a bicycle. **GOAL:** To know the various parts of a bicycle and where those parts belong on the bicycle.	½-1 period
22	**DESCRIPTION:** Class discusses maintaining a bicycle. **GOAL:** To be aware of the tasks that are important for bicycle maintenance and the procedures for performing these tasks.	½-1 period
23	**DESCRIPTION:** Students discuss methods for preventing bicycle theft. **GOAL:** To be aware of various methods of preventing bicycle theft and to know why some measures are preferable to others.	½-1 period
24 Spirit Master #6	**DESCRIPTION:** Students perform basic maintenance tasks on a bicycle in class. **GOAL:** To be able to perform various bicycle maintenance tasks that they can then perform on their own bikes.	1 period plus out-of-class time

MINI-UNIT 5 LESSON PLAN (CONTD.)

Learning to maintain a bicycle

Activity #	*Activities*	*Class Time*
25[a]	DESCRIPTION: Students interview bike riders on common bicycle malfunctions they have experienced and what kind of maintenance they perform on their bikes to prevent breakdowns. GOAL: To know why bicycle maintenance is necessary to prevent certain types of bicycle malfunctions.	2-4 periods plus out-of-class time

Total Class Time: 4½-8 periods.

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[a] This activity also appears in Mini-unit 1.

ACTIVITY #21

Mini-unit Topic: Maintaining a Bicycle **Approximate Class Time:** ½-1 period

Capsule Activity Description: Students play a card game that requires them to identify the parts of a bicycle.

Goal:

To know the various parts of a bicycle and where those parts belong on the bicycle.

Concept Treated:

- Knowledge about the different parts of the bicycle and their purpose is essential to the person who needs or wants to maintain a bicycle.

ACTIVITY

Students play a card game that requires them to identify the parts of a typical bicycle. The class breaks into small groups of no more than four students. Each player is given a duplicated copy of the instructions and the bicycle diagram provided on Spirit Masters #4 and #5. Each group is also given a copy of the pages of cards that follow this activity and cuts out the cards and pastes them onto cardboard or onto 3 x 5 cards for durability. (Answers to the bicycle diagram may be found after the cards which follow.)

Evaluation Method:

Game is self-evaluating.

Variation or Supplementary Activity:

If students are interested in making more detailed reapirs or in carrying on more intricate maintenance operations, they can create cards for more esoteric parts (e.g., jockey roller, cotter bolt) and either revise the bicycle diagram to accommodate these parts or develop an entirely new diagram.

Rear derailleur	Seat lug	Rear sprocket	Front brake	Saddle
Chain	Seat stays	Toe clip	Front derailleur	Seat post
Chain stays	Down tube	Pedal	Seat post Clamp bolt	Rim

Brake pad	Tire valve	Gear cables	Front hub	Tire
Spoke	Brake levers	Crank	Gear shift	Top tube
Quick-release lever	Chainwheel	Rear brake	Crank axle	Handlebars

Seat tube	Fork	Brake cable	Fork crown	Expander bolt
Write in your own part	*Write in your own part*	*Write in your own part*	*Write in your own part*	*Write in your own part*
Write in your own part	*Write in your own part*	*Write in your own part*	*Write in your own part*	*Write in your own part*

Answer Sheet

1. Rear derailleur
2. Brake cable
3. Seat post
4. Rim
5. Spoke
6. Chainwheel
7. Chain
8. Rear sprocket
9. Chain stays
10. Fork crown
11. Brake pad
12. Brake levers
13. Rear brake
14. Fork
15. Front brake
16. Down tube
17. Tire valve
18. Crank
19. Crank axle
20. Seat lug
21. Saddle
22. Pedal
23. Gear cables
24. Gear shift
25. Handlebars
26. Seat stays
27. Toe clip
28. Front hub
29. Top tube
30. Seat tube
31. Expander bolt
32. Front derailleur
33. Seat post clamp belt
34. Tire
35. Quick-release lever

ACTIVITY #22

Mini-unit Topic: Maintaining a Bicycle **Approximate Class Time:** ½-1 period

Capsule Activity Description: Class discusses maintaining a bicycle.

Goal:

To be aware of the tasks that are important for bicycle maintenance and the procedures for performing these tasks.

Concepts Treated:

- Regular bicycle maintenance is important for safe and enjoyable bike riding.
- Once the various tasks leading to safe bicycle maintenance have been learned, they are easy and not too time consuming to perform on a regular basis.

ACTIVITY

Hold a class discussion on basic maintenance tasks which bicycle owners can and should perform. Such tasks include

- *Tire care,* including maintaining proper tire pressure (indicated on most tire sidewalls); being careful about filling tires with air, particularly with gas station pumps which can be inaccurate and cause tire explosions; not abusing tires by riding over curbs, riding double, and skidding to a stop; and not letting bicycle stand for any length of time on under-inflated tires
- *Lubrication* (according to bicycle manual instructions) of brakes, derailleur, chain, pedal, and other parts
- *Tightening* bolts and screws periodically
- *Adjusting brakes* as they wear or loosen by turning appropriate screw
- *Keeping bicycle dry* and free from mud

Follow-up discussion can center on reasons maintenance is important, such as

- Making sure bicycle riding is as safe as possible (e.g., by having working brakes)
- Making riding as easy as possible (e.g., through lubrication and proper tire pressure)
- Ensuring a longer lasting bike (e.g., by wiping it when it is wet)
- Avoiding inconvenient equipment failures and breakdowns on the road (e.g., flat tires, lost bolts or screws)
- Maintaining resale or trade-in value

Finally, the class should discuss the reasons why bike owners are often reluctant to perform regular maintenance, such as

- Laziness
- Not knowing that maintenance makes for safer and easier riding
- Insecurity about how to do technical things like oiling joints and tightening screws and bolts

Evaluation Method:

Students write a brief *Manual for Bicycle Maintenance* that includes the basic maintenance tasks the average owner can perform.

Variations and Supplementary Activities:

Hold a class discussion on how to winterize a bike, including lubrication, leaving the bike upside down or hanging, treating the saddle with saddle soap to preserve the leather, and cleaning and oiling all chrome parts and spokes.

A trained mechanic can be invited to class to discuss how to take care of a bicycle.

ACTIVITY #23

Mini-unit Topic: Maintaining a Bicycle

Approximate Class Time: ½-1 period

Capsule Activity Description: Students discuss methods for preventing bicycle theft.

Goal:

To be aware of various methods of preventing bicycle theft and to know why some measures are preferable to others.

Concepts Treated:

- There are many things that can be done to help prevent bicycle theft; some of these are more effective than others.
- Some preventative measures are more effective than others, for specific reasons (e.g., locking the front wheel to an object may result in everything but the front wheel being stolen).

ACTIVITY

Students write individual responses to the following scenario:

You have just bought a new bicycle. Your last one was stolen, but you decided you could afford another one. You know that you will not be able to buy a third one if this one is stolen. What do you plan to do to make absolutely sure *this* one isn't stolen?

On the following day, students break into small groups and are given written instructions to

1. Read each other's papers.
2. List all the methods mentioned for keeping a bicycle from being stolen.
3. Discuss and record which methods will really help, and why.

The groups present their conclusions to the class and respond to questions and comments from you and from other groups. You can suggest methods not otherwise mentioned by students, such as

- Trading in the new bike for an old beat-up one that fewer people are likely to want to steal
- Using a special kind of lock, such as the Kryptonite^{R} bike lock designed by MIT students, or a heavy-duty tempered-metal chain and lock (both can be found at most bicycle shops)
- Locking the bike to a solid, immovable object
- Passing the bike chain through both wheel and frame before locking it to a fixed object (see the diagram at the end of this activity)
- Leaving the bike within your view at all times
- Asking someone to keep an eye on the bike while you are away
- Removing the front wheel and locking it up too
- Registering the bike with the police to facilitate police identification if the bike is stolen and recovered. (In some communities bicycle owners must register their bikes with the police--what is the policy in the students' own community?)
- Keeping a record of the bike's brand, model, number, and serial number
- Considering adding the bike to the students' parents' personal-property floater on their home-owner's insurance policy
- Considering the purchase of bike theft insurance sold by some local bicycle dealers
- Parking your bike in a "Rally Rack," a theft prevention rack

Evaluation Method:

Students write a brochure for other students and the community on how to reduce the incidence of bicycle thefts.

Variations and Supplementary Activities:

This activity can be a research assignment.

Students can discuss dangerous riding locations and times where they might be jumped and robbed, such as parks at night.

Students can interview police officers about bicycle thefts and ask such questions as

How many thefts are there in our town a week?

Is the number going up, down, or remaining the same?

What kinds of bicycles seem to be stolen most often?

Why those kinds?

How many bicycles that are reported stolen are recovered?

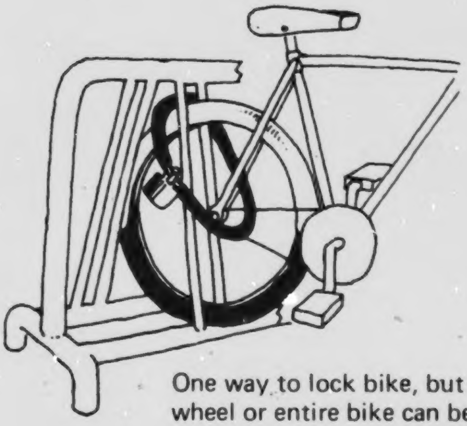
What happens to stolen bicycles police find? How are owners located? What happens to them if their owners are not located?

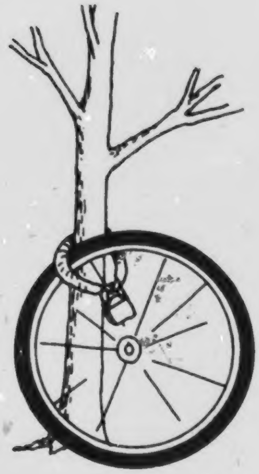
What can bike owners do to prevent bicycle thefts?

Who steals bikes? Kids? Adults? Men? Women?

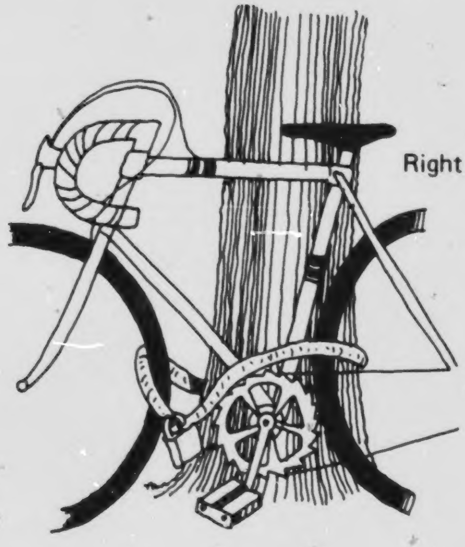
What do bicycle thieves do with bikes they have stolen?

What is the penalty for stealing bikes?





One way to lock bike, but front wheel or entire bike can be stolen leaving only . . . . the wheel



Right way to lock bike.

ACTIVITY #24

Mini-unit Topic: Maintaining a Bicycle

Approximate Class Time: 1 period, plus out-of-class training

Capsule Activity Description: Students perform basic maintenance tasks on a bicycle in class.

Goal:

To be able to perform various bicycle maintenance tasks that they can then perform on their own bikes.

Concepts Treated:

- Various bicycle maintenance tasks, although they may appear simple on the surface, in fact require a good deal of practice to carry out well.
- Required bicycle maintenance tasks--or the way they should be performed--differ for various makes and models of bicycles.

ACTIVITY

The class divides into small groups, and each group is assigned or selects one of the following maintenance tasks: lubrication, tire care, tightening bolts and screws, or adjusting brakes. Different groups can be assigned to work with different makes or models of bikes (e.g., racing, high-rise, one-speed, etc.), or all can work on the same type. Each group is responsible for learning how to perform its task well.* The groups get together after school to practice their tasks on a bicycle donated by a group member, parent, faculty member, or member of the community. After becoming proficient in its bicycle maintenance task, each group informs the teacher that it is ready to demonstrate the task to the rest of the class. On the same day or during different classes, the groups then perform their maintenance tasks in front of the class, explaining what they are doing in the process. Other members of the class ask questions and comment on the proficiency of the group demonstrating the task.

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*Groups should consult the Bibliography for sources of information on bicycle maintenance.

Evaluation Methods:

Students prepare a brochure for classmates and others on how to perform basic maintenance tasks.

Each group performs one of the maintenance tasks it did not present. The performance is then critiqued by the group whose specialty that task was.

Variations and Supplementary Activities:

Students who don't own bicycles can ask as inspectors.

Students can use the inspection list provided on Spirit Master #6 for maintaining their own bikes.

A bicycle mechanic can be invited to class to evaluate each group's performance and to offer suggestions of his own.

Activity #25

Mini-unit Topic: Maintaining a Bicycle

Approximate Class Time: 2-4 periods, plus out-of-class time

Capsule Activity Description: Students interview bike riders on common bicycle malfunctions they have experienced and what kind of maintenance they perform on their bikes to prevent breakdowns.*

Goal:

To know why bicycle maintenance is necessary to prevent certain types of bicycle malfunctions.

Concept Treated:

- Certain bicycle malfunctions are closely or directly related to lack of proper maintenance.

ACTIVITY

Break the class into small groups to research briefly bicycle maintenance tasks. Have each group develop a list of questions to ask bike riders regarding bicycle maintenance problems they commonly have. Each group takes one other group's questionnaire as a dry run. Sample questions the groups might ask follow:

- What are the two or three most common problems you have with the functioning of your bicycle?
- How do you take care of these problems? Do you fix them yourself? have a friend fix them? use a mechanic? just not fix them?
- What types of maintenance do you perform on your bicycle?
- If you do not perform all the standard maintenance tasks, why not?
- Do you feel regular maintenance helps prevent bicycle malfunctions?

The groups decide how to poll cyclists--on the street, door-to-door, choose among classmates or among bicycle club members, etc. They then decide what correlations to make, such as by age and sex of rider, or type and age of bike owned. Finally, the groups divide up responsibility for the polling.

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*This activity also appears in Mini-unit 1.

After conducting the poll, the groups collate and evaluate their findings and prepare a report for the class. After presenting the report, the groups respond to comments and questions from you and the class.

Evaluation Method:

Students develop a brochure for cyclists on what maintenance to perform and indicate how such maintenance can help prevent future bicycle malfunctions.

Variations and Supplementary Activities:

The group can interview the parents of small children who ride bikes.

Students can also interview bicycle mechanics on bicycle problems that regular maintenance and care can prevent. Sample questions students can ask include

1. What problems with bicycles are brought in to you that could have been prevented by regular maintenance?
2. What maintenance task could have prevented each type of problem?
3. Why do some people not perform these maintenance tasks?
4. What other maintenance tasks should the average bike owner perform, and how often?
5. How should a bike be stored in winter?
6. Are there any kinds of maintenance tasks which must be performed by a mechanic?

MINI-UNIT 6

IDENTIFYING WHEN AND HOW TO SEEK REDRESS OF GRIEVANCES

This unit is designed to help students develop skills in determining when it is appropriate to complain about poor quality in the bicycles they buy or the bicycle repairs that are done for them.

In addition, the unit promotes the development of positive attitudes toward redress of all consumer grievances--specifically, the attitude that there are both appropriate and inappropriate times and ways to complain about poor customer service.

Among other key concepts the unit addresses are the following:

- There are certain accepted methods of seeking redress of grievance, and these are more likely to produce positive results.
- The redress one seeks should match the grievance (that is, one should not make unreasonable demands of the salesperson or manufacturer, since this might lead to no redress at all).
- Phrasing a grievance letter in certain terms and using certain letter-writing techniques increase one's chances of receiving a reply or of having the grievance redressed.

As follow-up to this mini-unit you might want to consult Activity 39 in Mini-unit 8. This activity would be appropriate for a few or many students, working in small groups, who have expressed an interest in this topic.

MINI-UNIT 6 LESSON PLAN

Identifying when and how to seek redress of grievances

Activity #	*Activities*	*Class Time*
26	DESCRIPTION: A class discussion is held on reasons for seeking redress of grievances and how this should be done. GOAL: To be aware of situations in which seeking redress of grievances is justified and ways in which this should be done.	1½-2½ periods
27[a]	DESCRIPTION: Students role-play scenarios in which a consumer complains to a salesperson or mechanic. GOAL: To be able to seek redress of grievances effectively and appropriately for unsatisfactory purchases and repairs.	1 period
28	DESCRIPTION: Students practice writing letters of complaint concerning grievances they have about bicycle purchase or repair. GOAL: To be aware of the reasons for and efficacy of writing letters of grievance.	1 period
29	DESCRIPTION: Students poll bicyclists on complaints about their bicycles and what, if anything, they did about their grievances. GOAL: To know the most common kinds of bicycle-related grievances owners have and the best methods to go about seeking redress of these grievances.	2-4½ periods plus out-of-class time

Total Class Time: 5½-9 periods.

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[a] This activity also appears in Mini-unit 1.

ACTIVITY #26

Mini-unit Topic: Seeking Redress of Grievances **Approximate Class Time:** 1½-2½ periods

Capsule Activity Description: A class discussion is held on reasons for seeking redress of grievances, and how this should be done.

Goal:

To be aware of situations in which seeking redress of grievances is justified and of ways in which this should be done.

Concepts Treated:

- Certain situations justify seeking redress of grievances, and certain others do not; one should be relatively sure that one is justified in seeking redress before "leaping into the fray."
- There are certain accepted methods of seeking redress of a grievance; these are more likely to produce positive results.
- The redress one seeks should match the grievance (that is, one should not make unreasonable demands of the salesperson or manufacturer, since this might lead to *no* redress at all).

ACTIVITY

A class discussion is held on reasons and methods for seeking redress of grievances concerning bicycle problems. The discussion can center on situations in which this is justified, how to seek redress, and the efficacy and ethics of different grievance actions.

Reasons for Seeking Redress of Grievances. The discussion should focus on two aspects of why to seek redress of grievances: specific causes for complaint (the grievance) and the objectives people expect to achieve by complaining (the redress). Specific grievances may resolve around such areas as purchase of defective bicycles or accessories; shoddy, delayed, or over-priced repair work on bicycles or accessories; unsafe bicycling conditions that may lead or already have led to accidents; lack of facilities for bicycles; and lack of means by which to seek redress of grievances. The types of redress sought can include repair of defective bicycles or accessories at no additional charge; injunctive relief against misleading advertising; punitive damages for dishonest sales methods, shoddy materials, or shoddy repairs; provision of an entirely new bicycle or accessory to replace a defective one at no extra charge; reduction in repair charges; provision of safe community bicycling facilities; elimination of unsafe community bicycling obstacles; and provision of means by which to easily and effectively obtain redress of grievances. You should provide examples of how specific grievances and appropriate redress objectives are related. For example, if a bicycle shop performs shoddy repair work, what *specific objectives* can and should a consumer seek to redress that grievance: no charge for faulty repair work? correction of the problem at no further charge?

Point out that how one obtains redress of grievances depends on what one's *objectives* are in seeking redress. If one wanted punitive damages for misleading advertising, one would use different means for redressing this grievance (e.g., court action) than if one simply wanted to exchange a bike for a different one (e.g., complaints to the management). In other words, there are three elements that must be examined: (1) the grievance (e.g., shoddy repairs); (2) the objective in seeking redress (e.g., free correction of the faulty repairs); and (3) the methods by which to achieve the redress (e.g., writing the Better Business Bureau).

There are two steps in obtaining redress of grievances. The first is *identifying who has the power to redress the grievance*--that is, who is in a position to refund the consumer's money or make the bike repair correctly or who is in a position to force the merchant or repair person to redress the grievance. Possibilities include the salesperson, the store manager, the courts, the Better Business Bureau, and many other individuals and groups. Once the individual(s) or groups have been identified who can redress the grievance, the consumer must decide *what methods should be used* to encourage or force the targeted person or group to redress the grievance.

Methods for Obtaining Redress of Grievances. Methods that can be presented include complaining to the salesperson or management in person, by telephone, or by writing personal, return-receipt-requested letters; refusing to pay by examining the bicycle or accessory upon purchase or after repair and either not paying at all or stopping payments made by check; and phoning, writing to, or meeting with appropriate consumer protection, business, and legal agencies, such as the

> U.S. Consumer Product Safety Commission, Washington,
> D.C. 20207 or its field offices in New York City, Atlanta,
> Chicago, San Francisco, Los Angeles, Boston, New Orleans,
> Kansas City, Philadelphia, Seattle, Denver, Minneapolis,
> Cleveland, and Dallas; toll free number 800-638-2666;
> Maryland only 800-492-2937

Federal Office of Consumer Affairs
Department of Health, Education and Welfare
Washington, D.C. 20201

State, county, and local consumer protection agencies, many of which are housed in the District Attorney's office. Addresses and phone numbers can be obtained by asking the telephone operator for information.

Local Chamber of Commerce
Address and phone number can be obtained from telephone directory or from
Chamber of Commerce of the United States
1615 H Street, N.W.
Washington, D.C. 20006

Local Better Business Bureau
Address and phone number can be obtained from telephone directory or from
Council of Better Business Bureaus
1145 - 19th Street, N.W.
Washington, D.C. 20036

Small claims courts, legal aid agencies, neighborhood legal services, appointed and elected officials, and owners, managers, and central offices of stores that are part of a chain of stores can also be helpful. Other possibilities include requesting help from local newspapers' action line; asking local media to publicize complaints in letters to the editors, articles, phone calls to talk shows, etc.; demonstrations, such as bike-ins, rallies, and picketing; and independent activities, such as creating road signs, developing bikeways, opening up one's own bike repair shop, etc.

Follow-up discussion on redress of grievances can center on such issues as

- Which methods of redress are legal?
- Which methods that are not illegal are nevertheless unethical?
- Is it ever permissible to use unethical methods when they are the only ones that may be effective?
- When is seeking redress of grievances not worth it because it involves too much time or effort?

During the following period, students break into small groups and respond to scenarios concerning grievances over faulty repair work or defective purchases. Each group is given three scenarios of possible grievances. Sample scenarios are provided at the end of this activity. Each group is given written instructions to

1. Carefully read the first story they have been given.

2. Decide and record whether they consider what happened to be unfair and why.

3. If they decide that what happened was unfair, discuss and record what they want to see done. For example, do they want their money back?

4. Then discuss and record what exactly they will do to get the salesperson to comply with their wishes, and explain why they chose that course of action.

5. Repeat Steps 1 through 4 for one or more of the other stories.

The groups then report their results to the class and respond to comments and questions from you and the class. You may want to make explicit the criteria by which consumers decide or should decide

- Whether to seek redress of grievances (e.g., they have a legitimate complaint; seeking redress will not involve too much time, effort, or money; seeking redress will be effective)

- Which courses of action to choose by which to redress the grievance (e.g., on the basis of efficacy, morality, and costs in terms of personal time, money, and effort expended)

Evaluation Methods:

Each student develops one scenario of his or her own. Students exchange scenarios and respond to them along the lines suggested in the activity. The student who wrote the scenario and the one who responded to it discuss the response together.

Students break into small groups and select one grievance they actually have or think of a common grievance and discuss the best method for seeking redress.

Sample Scenarios

Delay

You have just bought a new $234 racing bike from Zooey's Department Store. You took it out for its maiden ride and the rear derailleur broke. You go home and look up the warranty. It says that Zooey's will replace any defective parts during the first two months, but will charge for any labor. You take the bike in and Zooey's tells you the labor will probably cost about $25 and it will take them about five weeks to get it repaired because they have to send it back to the manufacturer who has a lot of other bikes to repair before yours. The salesperson at Zooey's tells you that you could take it to a bike repair shop for faster service, but they will charge you not only $25 labor but $35 for a new derailleur. What, if anything, do you do?

Poor Service

One of your brake cables broke, and you have just had your bike repaired at Bibby's Bicycle Shop for $7.50. You check the brakes in the store, and they seem okay. But the next Saturday when you go out riding, the same cable breaks again! You take the bike back to Bibby's, and the salesperson tells you it'll cost you $12.50 for a new cable and labor. You suspect that Bibby tried to do a quick patch-up job on your brake before, and since it didn't work, he's now going to do it right. But in the meantime, you have made a second trip, and your original $7.50 is down the drain. What, if anything, do you do?

Refusal to Repair

You bought a new bike and rode it a few times, but the brakes just didn't seem as good as they should be. When you used them, your bike didn't stop as sharply as you wanted or thought it should. You didn't really know whether this was just the way bike brakes work, or whether it was because they weren't working properly. So you had two of your friends ride your bike, and they told you that you were absolutely right: the brakes aren't any good. Since you have a warranty that says Bumble's Bicycle Shop, where you bought the bike, will repair anything that goes wrong in the first 90 days, you took it back to them. But the salesperson told you there was nothing wrong with the brakes. "What do you expect for $85 bike? Instant action?" he said. He refuses to repair them, saying there's nothing he can do. What, if anything, do you do?

No Refund

You just bought a new $12.50 Whooper bicycle light at Arlo's Accessory Shop for your bike so you could ride more safely at night. On your second night out, the light stops working. You take it back to Arlo's but Arlo tells you he can't refund your money (it's against company rules) and that's the last Whopper bicycle light he had in stock. He'll be glad to exchange your Whopper for a cheaper Whimper light, but you know the Whimper is worth only about $3.50. This means you lose $9.00 on your original purchase. What, if anything, do you do?

ACTIVITY #27

Mini-unit Topic: Seeking Redress of Grievances

Approximate Class Time: 1 period

Capsule Activity Description: Students role-play scenarios in which a consumer complains to a salesperson or mechanic.*

Goal:

To be able to seek redress of grievances effectively and appropriately for unsatisfactory purchases and repairs.

Concepts Treated:

- Certain methods for seeking redress of grievances are more effective than others.
- The redress one seeks should match the grievance.
- Practicing seeking redress of grievances can facilitate such action when it proves necessary in real life.

ACTIVITY

Students role-play customers seeking redress of grievances from bicycle repairpersons or salespeople who, according to these "consumers," have engaged in unfair business practices. Sample role profiles are provided at the end of this activity.

After each role play, participants read their role profiles to the class and discuss the feelings they had while role-playing; in particular, "salespersons" and "mechanics" discuss their emotional reactions to different approaches on the part of "customers"--which approaches made them more likely to be firm and which approaches inclined them to make concessions. Nonparticipants discuss what they would have said and done had they been involved. The class should be encouraged to write its own role profiles.

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*This activity also appears in Mini-unit 1.

After completion of the role plays, list on the blackboard the possible responses that salespeople and mechanics can offer to justify their positions and the possible approaches consumers can use in seeking redress of grievances.

Evaluation Method:

Students compose the dialogue to one or more scenarios, writing the parts of the customer and the salesperson.

Variation and Supplementary Activity:

This activity can be held as a class or small group discussion.

Sample Role Profiles

No Refund

Customer

Last week you bought a Whimper bicycle light for your bike for $3.50 at Arlo's Accessory Shop. The second time you used it, the on-off switch broke off. It's not something you can repair. You need a new light. You are angry and have taken the light back to Arlo's and walk up to him to demand he give you a new light for nothing or give you your money back. What do you say?

Salesperson

You work in Arlo's Accessory Shop. Most of the bicycle accessories you sell are cheap, but most of your customers don't want expensive bicycle lights, saddle bags, horns, and so on. The problem is that many of the accessories you sell break pretty quickly because they're so cheaply made. It's store policy not to refund money on any sales or to exchange anything, so it's sometimes a problem when someone comes in the store with an accessory that broke quickly and he wants his money back. In fact here comes the customer who bought your last Whimper bicycle light last week. He looks angry. It must have broken already. Why didn't he (she) buy the more expensive Whopper light as you had suggested? Although the Whimper light is only $3.50 and the Whopper light is $12.50, the Whopper light wouldn't break. Well here comes the complaint.

Delay

Customer

You bought a new $234 racing bike from Zooey's Department Store. You took it out for its maiden ride and the rear derailleur broke. You went home and looked up the warranty. It says that Zooey's will replace any defective parts free during the first two months, but will charge for labor. You take the bike into Zooey's and speak to the salesperson. You are about to tell him the problem and ask him to repair or replace the derailleur for nothing since it's in your guarantee. You also want him not to charge you for the labor, even though that's not in the guarantee. You step up confidently to him. What do you say?

Salesperson

You sell bicycles in Zooey's Department Store. However, your store doesn't repair bikes. It sends them out to be repaired and this usually means it takes about five weeks to get a bike repaired for a customer. You don't like this policy because customers get angry at your and your salary depends on how many bikes you sell. The more you sell, the higher your salary. And the more angry customers you have, the less likely they are to buy any bikes from you in the future. But it's the store policy and you feel stuck with it. In fact, here comes an angry looking customer with a bicycle you remember selling him only last week. You remember that this particular model has been having trouble with derailleurs--and it costs $25 in labor to have them fixed, although the warranty does guarantee that there is no charge for the part. Oh, oh! Here comes what looks like another angry customer with a broken derailleur!

Poor Service

Customer

You had your brakes repaired on your bike last week in Bibby's Bicycle Shop and it cost you $7.50. One of the cables had broken. Only yesterday the same cable broke again! You are furious and have taken the bike back to Bibby's ready to demand that he repair it for nothing--no parts or labor charges--and guarantee it won't break again. The repair person has just finished waiting on another customer. You walk over to him (her). What do you say?

Repairperson

You are the repairman in Bibby's Bike Shop. You feel you are good at your job, but of course sometimes you don't do such a great job making repairs--you have so many to do and the owner, Mr. Bibby, wants you to get as many done as you can. Sometimes, too, you have to work with bikes and materials that aren't that great--they aren't made well or they break easily. Right now, as you deal with one customer, you notice a customer whose brake cables you repaired only last week bringing his bike back into the store and you can see the broken brake cable across the store. You charge $7.50 ($4.00 labor and $3.50 for parts) for fixing brake cables but you know this customer is probably going to want you to fix this cable free. How are you going to solve this problem? Mr. Bibby doesn't like you to do repairs for nothing, even when the problem was your fault. But it wasn't even your fault, necessarily. Maybe the cable was a lousy cable to begin with? You're just finishing up with your customer and this customer with the broken cable walks over to you.

ACTIVITY #28

Mini-unit Topic: Seeking Redress of Grievances

Approximate Class Time: 1 period

Capsule Activity Description: Students practice writing letters of complaint concerning grievances they have about bicycle purchase or repair.

Goal:

To be aware of the reasons for and efficacy of writing letters of grievance.

Concepts Treated:

- Phrasing one's grievance letter in certain terms and using certain letter-writing techniques increase one's chances of receiving a reply or of having the grievance redressed; factual, objective letters are better than angry, threatening ones.
- Certain types of information should be included in complaint letters, including copies of purchase or warranty papers.

ACTIVITY

Students read one or more of the sample scenarios in Activity 26 and write letters seeking redress of the grievances illustrated in those scenarios. Each student (or small groups of students) decides to whom they should write and what should be included in the letter. A list of potential recipients is at the of this activity along with a sample consumer complaint letter. Follow-up discussion can focus on

- How useful letter writing is
- Who the best targets are for writing letters
- Whether letters are more effective if they are angry, factual, apologetic, etc.

- What information should be included (e.g., the writer's name and address; the name of the bicycle shop and its address; the make, year, and number of the model; a description of the complaint; copies of repair, purchase, or warranty papers; the conduct of the saleperson(s) dealt with; and an indication that copies are being sent to other people)

Evaluation Method:

Each student writes his or her own letter and then exchanges it with another student. Students criticize each other's letters in terms of their potential effectiveness.

Variation and Supplementary Activity:

Students can role-play telephoning their complaints to one or more sources of redress of grievances while other students role-play the party receiving the call.

Agencies, Individuals and Groups to Which to Write Letters Seeking Redress of Grievances

1. Bicycle manufacturers or distributors (check bike manual or call bike store

2. Consumer Product Safety Commission: To report safety defects or bicycling injuries, use toll-free phone number: 800-638-2666 (in Maryland only: 800-492-2937)

3. National Highway Traffic Safety Administration (for help with safety guidelines, not warrantees or redress)
   Administrator
   NASSIF Building
   400 7th and D Streets
   Washington, D.C. 20590

4. Federal Trade Commission (if the company engages in interstate commerce and the complaint alleges false advertising or restraint of trade)
   Chairman
   Washington, D.C. 20580
   or regional offices in Atlanta, Boston, Chicago, Cleveland, Kansas City, Los Angeles, New Orleans, New York, San Francisco, Seattle (consult a local phone book)

5. Voluntary consumer groups. For names of local organizations, write to
   Executive Director
   Consumer Federation of America
   Suite 1105
   1102 14th Street
   Washington, D.C. 20005

6. State and city consumer protection agencies (consult a local phone book)

7. Newspaper action lines (call local newspapers)

8. Better Business Bureaus (consult a local phone book)

9. Federal congressmen (House of Representatives, Washington, D.C. 20510) and senators (U.S. Senate, Washington, D.C. 20510) to recommend Federal legislation

10. State and local governmental representatives, governor, mayor, etc. (call information for addresses)

11. Foreign embassies (for bikes manufactured abroad; consult a local phone book)

Sample Consumer Complaint Letter

14 March 1977

Ms. Sarah Rizzo
President
Spoke Bicycle Company
Transit, Pennsylvania 00000

Dear Ms. Rizzo:

On April 1, 1976 I bought a Loser XKE bicycle from Larry's Bicycle Shop on 50 Main Street, Boston, Massachusetts. With the bike came a year's guarantee on parts and labor. However, two weeks after I bought it, the shifting mechanism broke. I took the bike back to Larry's Bicycle Shop, but he told me I would have to pay for the repairs because it was my fault the mechanism broke. He claims I must have let the bike fall over on it. This isn't true. It broke while I was riding up a hill. I insist on having the warranty honored. I hope you will take prompt action to remedy this unethical behavior on the part of Larry's Bicycle Shop.

I enclose copies of my sales receipt and the manufacturer's guarantee. Thank you for your attention.

Sincerely,

Paul O'Reilly

cc: Mass. Consumer Protection Agency
Boston Better Business Bureau

ACTIVITY #29

Mini-unit Topic: Seeking Redress of Grievances

Approximate Class Time: 2-4½ periods, plus out-of-class time

Capsule Activity Description: Students poll bicyclists on complaints about their bicycles and what, if anything, they did about their grievances.

Goal:

To know the most common kinds of bicycle-related grievances owners have and the best methods to go about seeking redress of these grievances.

Concepts Treated:

- There are numerous ways of seeking redress for the same grievance.
- In certain situations, there are definite obstacles to seeking redress for bicycle-related grievances.

ACTIVITY

Small groups of students polls bicyclists about what complaints they have had concerning their bicycles in the past and what, if anything, they did about these complaints. The groups decide what questions to ask and then solicit additional questions from classmates. Sample questions include

1. When you bought your bicycle, did you have any complaints about the way it worked?
2. If so, what specifically were your complaints?
3. What, if anything, did you do about your complaints?
4. Were you successful in your efforts to seek redress of grievances? Why?
5. Have you had repair work done on your bicycle, and have you had any complaints about it? (Repeat second, third, and fourth questions.)

Questions are included that probe why bicycle owners did not seek redress of grievances even when they felt strongly that they had a legitimate complaint. Respondents are asked what would encourage or enable them to seek redress of grievances, such as more convenient methods for registering complaints and more confidence that complaining would serve some purpose or lead to some result.

The groups decide whom they will poll, such as the parents of children with bikes, teenagers, classmates, community residents, bicycle club members, and other groups.

After conducting the poll, the groups analyze their results in terms of

- Whether bicycle users and purchasers have common grievances
- What these grievances are (unkept guarantees, shoddy repair work, delays in repair work, defective purchases)
- What consumers tend to do about these grievances
- Why consumers fail to seek or are unsuccessful in obtaining redress of their grievances
- How bicycle owners can be assisted in their efforts to obtain redress for their grievances

The groups prepare and present a report to the class and respond to questions and comments from you and the class.

Evaluation Method:

Students role-play or write the dialogue to scenarios in which news reporters interview bicycle repairers about what customers do and should do about complaints.

Variations and Supplementary Activities:

Students can submit the results of their poll for publication in the school and community newspapers.

Students can interview or poll bicycle repairers on the most common customer complaints and the most common and effective methods customers can use for what they feel to be a grievance.

This activity can be an individual research assignment or class discussion.

MINI-UNIT 7

IDENTIFYING AND PROMOTING BICYCLE FACILITIES

The extent, convenience, and safety with which people can bicycle depend heavily on the nature of the bicycle facilities available to them. Bikeways and bike paths make riding less dangerous and more enjoyable, and equipment for safely securing parked bicycles reduces the potential for theft.

Federal, state, and local governments have increasingly recognized the importance of bicycle facilities and have collectively been spending several million dollars a year to provide them.

This mini-unit will help students become familiar with what kinds of bicycle facilities there are and how they can best be used. In addition, the unit involves students in identifying what additional or expanded bicycle facilities would be desirable in their communities so that they can engage in appropriate citizen participation activities to secure them.

Other key concepts the unit addresses are the following:

- In order to obtain adequate and satisfactory bicycle facilities for a community, it is necessary to assess that particular community's needs and resources first.
- Observation of bicycling habits among residents of a given community can be of help in deciding what kinds of bicycle facilities are needed in that community.
- Planning of bicycle routes is a relatively complicated activity, calling for several research- and activity-oriented steps.

This mini-unit can be logically taught after the units on purchasing and maintaining a bicycle (Mini-units 4 and 5). It can also be implemented in conjunction with the mini-units on safety (Mini-units 2 and 3) in terms of the integral relationship between the provision of bikeways and the reduction of bicycling hazards.

MINI-UNIT 7 LESSON PLAN

Identifying and promoting bicycle facilities

Activity #	*Activities*	*Class Time*
30[a]	DESCRIPTION: A class discussion is held on existing and needed bicycle facilities, such as bikeways and parking areas, and how to plan and advocate them. GOAL: To know what kinds of facilities are needed in the community (as well as in others) and how to go about obtaining them.	1½-2 periods
31	DESCRIPTION: Students keep a written list of their observations about local bicyclists for one or more days. GOAL: To be aware of bicyle-riding habits of people in the community, including the ways in which residents use or abuse bicycle facilities.	½-1 period
32[a]	DESCRIPTION: Students obtain a map of their community and plot and publicize bicycle trails for recreation and commuter transportation. GOAL: To know the various steps which go into planning and developing a desirable bike route for transportation or recreation in the community.	3-5 periods, plus out-of-class time

[a] This activity also appears in Mini-unit 1.

Total Class Time: 5-8 periods.

ACTIVITY #30

Mini-unit Topic: Identifying Bicycle Facilities **Approximate Class Time:** 1½-2 periods

Capsule Activity Description: A class discussion is held on existing and needed bicycle facilities, such as bikeways and parking areas, and how to plan and advocate them.*

Goal:

To know what kinds of facilities are needed in the community (as well as in others) and how to go about obtaining them.

Concepts Treated:

- In order to obtain adequate and satisfactory bicycle facilities for a community, it is necessary to assess that particular community's needs and resources first.
- Planning for community bicycle facilities involves going through a number of well-ordered steps.
- The public can engage in citizen participation designed to promote the development of bicycle facilities such as bikeways and bike lanes.

ACTIVITY

A class discussion is held on what bicycle facilities exist in the community, what other facilities may be needed, and how citizens can plan for and advocate these facilities. The discussion can cover five areas, as follows:

Definition of terms that describe facilities include bikeways (streets with signs indicating that they may be used by bicyclists but that there is no separation between cyclists and motorists); bike lanes (right-hand sections of streets marked off by a white line for use by bicyclists); and bike paths (trails for bicycles that are physically separate from streets).

Types of facilities that can be identified include bikeways, bike lanes, bike paths; street signs warning automobile drivers that bicyclists are on the streets; convenient and safe parking facilities for bicycles (metal, well-lighted, easily observable); legislation--not exactly a "facility," but within the general area of this discussion (for example, legislation allowing bicyclists to use uncrowded sidewalks); and street cleaning to remove glass and other debris from the edges of roads where bicyclists travel.

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*This activity also appears in Mini-unit 1.

Purposes of facilities vary according to the facility. Some examples that can be discussed include purposes of bike paths and lanes (safety, speed, convenience, distance from car exhaust fumes), and purposes of parking facilities (convenience, i.e., closeness to destination, safety, i.e., where pedestrians and cars won't run into them, and security, i.e., reduced risk of theft).

Determining which facilities are needed involves two steps: (1) deciding what types of facilities are needed (parking facilities, signs, bike paths, bike lanes, etc.); this can be done by conducting polls and interviews, by observing community traffic patterns, and contacting appropriate officials in government and private agencies and organizations) and (2) deciding what the particular characteristics of each type of facility should be, including parking facilities (where they should be located; what they should be made of; whether they should be metered or free; etc.) and for bike lanes and paths (how wide they should be; how steep; how they should be surfaced; i.e., concrete, dirt, etc.; with overpasses and underpasses; etc.).

Indicating how facilities may be obtained also involves two steps, one research-oriented, and one action-oriented: (1) identify who in the community makes or could make the important decisions about bicycle facilities and who has the power and money to implement these decisions (e.g., Departments of Public Works, Departments of Transportation, politicians, Park and Recreation Departments, highway or traffic engineers, etc.). The 1973 Federal Highway Act permits states to spend up to $2 million a year of highway funds on bike paths and parking facilities.* (2) Discuss the actions citizens may take to influence these individuals and agencies to provide bicycle facilities, such as writing letters to key individuals; organizing meetings with key individuals, agencies, and organizations to explain the need for bicycle facilities and press for their development; circulating petitions in the community and forwarding them to key individuals, agencies, and organizations by mail or at a meeting; during political campaigns, asking candidates to take a stand on providing bicycle facilities; joining bicycle organizations that engage in political activity, such as

Concerned Bike Riders for the Environment
P.O. Box 24388
Los Angeles, CA 90024

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*See the reading at the end of this activity.

Friends of Bikecology
1035 East De La Buerra
Santa Barbara, CA 93103

organizing bike-ins, rallies, and conventions (bike-ins involve attention to route selection, notification of proper authorities, involvement of the media, and determination of objectives; demonstrating the need for facilities (e.g., if parking on the sidewalk is not allowed, parking in automobile spaces to demonstrate the need for bicycle parking facilities); and building facilities or otherwise providing them oneself (e.g., developing bike paths or building parking facilities; permission, if not active assistance, from local authorities is usually needed for these activities).

Specific information for securing funds for new bikeways in the local community is contained in a government publication entitled *Bicycles and Pedestrian Facilities in the Federal-aid Highway Program.* Major portions of this pamphlet are provided at the end of this activity. In addition to reading the information provided in this publication, students will also need to learn which local government agencies have jurisdiction for planning and funding bikeways and what procedures these agencies have set up for receiving comments and petitions from local residents.

After the discussion, students are given the following scenario and then engage in the exercise that follows:

> You have just been put in charge of deciding what public bicycle facilities your community should have. In addition, you have been given a million dollars to spend on building them. What, *exactly*, will you build and where?

Students then divide into small groups, read each other's papers, and discuss them. Group discussion should center on

- What facilities those in the group agreed that the community needs?
- What facilities the group disagreed on and why?
- What are the most important facilities to get first and why?

The groups report their conclusions to the class and respond to comments and questions from you and the class.

Evaluation Methods:

Each student selects one facility which he or she would like developed in the community, records why, and develops a strategy for obtaining it. Students exchange papers, and each student pretends he or she is the person or agency toward whom the strategy of the other student's paper is aimed. The second student then decides whether he or she would actually be influenced by that strategy.

Students are given a map of a hypothetical community or of a community other than their own and asked to indicate where they feel there should be bicycle facilities and why.

Variations and Supplementary Activities:

Students can seek to have their suggestions implemented in their own community.

Students can poll the community on its attitudes toward bicycle facilities.

BICYCLES AND PEDESTRIAN FACILITIES IN THE FEDERAL-AID HIGHWAY PROGRAM*

In carrying out its responsibilities in the administration of the Federal-aid highway program, the Federal Highway Administration (FHWA) has responded to the changing transportation needs and desires of the American public. One of these changes is the increasing need and desire for bicycle facilities .

To meet this change, the FHWA has approved the provision of bicycle and pedestrian facilities as part of a Federal-aid highway project wherever conditions are favorable and a public need is served. The policy has thus far resulted in 55 miles of bicycle facilities constructed at an approximate cost of $2 million and another 334 miles planned at an estimated cost of $15 million. At least 23 states have taken advantage of this policy.

In 1973, Congress enacted the Federal-aid Highway Act of 1973, which permitted FHWA to expand its bicycle program. Section 124 of this Act (Title 23, U.S. Code, Section 217) allows the use of Federal-aid highway funds to construct bicycle and pedestrian facilities independent of regular highway projects. It should be noted that funds are not reserved exclusively for bicycle or pedestrian facilities, but are, in fact, highway funds that may be used for highways, bikeways, and walkways.

The Federal-aid Highway Program

The Federal-aid highway program is a cooperative effort between the states and the Federal government. Each year, the Federal

states for the planning, construction, and improvement of roads and bridges on the Federal-aid highway systems. The states are responsible for the administration of these various types of funds.

Highway Planning and Research Funds (HP&R) and Planning Funds (PL) are used to fund the planning and research activities that are necessary for development and implementation of highway projects, including bicycle and pedestrian facilities. The limit of the Federal-aid share of planning and research project costs is approximately 80 percent.

HP&R projects may be located anywhere in the state and are selected by the state transportation agency. PL funds are to be used for planning projects that are located in an urbanized area which contains a population of 50,000 or greater. The metropolitan planning organization responsible for transportation planning in the urbanized area selects the projects to be financed with PL funds.

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*Published by the U.S. Department of Transportation, Federal Highway Administration (FHWA), 1974.

The FHWA apportions construction funds to the states on a system basis: interstate, primary, secondary, and urban. The limit of the Federal-aid share of interstate system project costs is approximately 90 percent and approximately 70 percent for the other systems' project costs.

Projects proposed for Federal-aid funding on the interstate, primary, and secondary systems are selected by the appropriate state transportation agency with consideration of state and local needs and desires.

Urban system funds may be used for projects located in urban areas of 5,000 population or greater. Also, a certain portion of urban system funds must be spent in urbanized areas with a population of 200,000 or greater. Projects proposed for Federal-aid funding on the urban system are selected by local elected officials acting through the metropolitan planning agency. These projects must have the specific concurrence of the state transportation agency and the state transportation agency should be contacted to determine the Federal-aid highway systems in a particular area. This information may also be obtained from the FHWA division office located in each state.

Funding Bicycle and Pedestrian Facilities

Planning and Research Projects

Planning and research activities that are necessary for the development of bicycle facilities may be financed with HP&R and PL funds. Where appropriate, planning for bicycle and pedestrian facilities should be included in the normal ongoing transportation planning process.

Construction Projects

The FHWA encourages the construction of bicycle and pedestrian facilities as part of the regular Federal-aid highway program. The construction of bicycle and pedestrian facilities may be approved where all of the following conditions are satisfied:

1. The facility will not impair the safety of the pedestrian, bicyclist, or motorist.

2. The facility will connect with existing facilities usable by bicyclists or it will form a segment of a proposed bicycle system.

3. A public agency has formally agreed to operate and maintain the facility and ban all motorized vehicles except maintenance vehicles and snowmobiles when snow conditions and state or local regulations permit.

4. It is reasonably expected that the facility will have sufficient use in relation to cost to justify its construction and maintenance.

Incidental Construction Projects. Bicycle and pedestrian facilities may be constructed as incidental features of highway construction projects when the bikeway or walkway is to be constructed concurrently with the improvement for motor vehicular traffic and the bikeway or walkway will be within the normal right-of-way of the highway, including land acquired for traffic improvements and scenic enhancement programs. Projects constructed as incidental features of larger highway construction projects may be financed with the same type of Federal-aid funds used for the basic highway project, including interstate projects, and are not subject to the funding limitations for independent bikeway or walkway projects.

Independent Construction Projects. Bicycle and pedestrian facilities may also be built independently of other highway construction projects. Such projects may be constructed on existing highway right-of-way or on special right-of-way or easements acquired for this purpose. Where facilities are to be located away from Federal-aid highway right-of-way, they must serve bicycle and pedestrian traffic which would normally desire to use the Federal-aid highway route.

The limit of the Federal-aid share of independent bicycle and pedestrian project cost is approximately 70 percent. A state may spend up to $2 million of Federal-aid funds in a year for independent bicycle and pedestrian facilities, provided a nationwide total of $40 million annually is not exceeded.

Features of Bicycle and Pedestrian Facilities

Bicycle and pedestrian facilities may include various features which will make their use safe, enjoyable, convenient, and efficient. The following are some of the features which may be included in a bicycle and pedestrian facility financed with Federal-aid highway funds.

1. Grading, drainage, paving, barriers, landscaping, and structures necessary to accommodate the number and type of users of the facility

2. Fixed source lighting where its use is appropriate

3. Right-of-way (land acquisition and relocation assistance) on independent bikeway and walkway construction projects

4. Curb-cut ramps on now-existing facilities, including ramps which are required for access by the physically handicapped

5. Bikeway and walkway grade separations where (a) vehicular speeds and crossing volumes constitute a hazard of such magnitude as to justify the cost of the structure, and the bikeway or walkway cannot be rerouted to another structure or (b) the separation is necessary because the highway has complete control of access

6. Traffic control devices including signs, signals, and pavement markings

7. Supplementary features such as shelters, parking, storage facilities, and comfort stations

8. Walks, barriers, and additional widths and lengths of bridges necessary for bikeways and pedestrian walkways for route continuity

Acquiring Federal Aid

The first recommended step in acquiring Federal aid for bicycle and pedestrian facilities is gaining the support of local governments for the proposed facility. Local governments provide valuable input into the highway program. This input varies from suggestions on the location and design of the facility to the selection of specific projects to be financed with Federal-aid highway funds.

The second step is to contact the local and state organizations previously identified as having the responsibility for the selection of projects to be financed with Federal-aid highway funds.

Further information concerning the operation of the Federal-aid highway program in a particular state may be obtained from the FHWA division office for that state.* The division offices can also provide specific information on state and local government agencies which should be contacted in conjunction with the development of projects.

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*Check your phone book under your state government for the office in your state.

ACTIVITY #31

Mini-unit Topic: Identifying Bicycle Facilities

Approximate Class Time: ½-1 period, plus out-of-class time

Capsule Activity Description: Students keep a written list of their observations about local bicyclists for one or more days.

Goal:

To be aware of bicycle-riding habits of people in the community, including the ways in which residents use or abuse bicycle facilities.

Concept Treated:

- Observation of bicycling habits among residents of a given community can be of help in deciding what kinds of bicycle facilities are needed in that community.

ACTIVITY

Students volunteer to keep a detailed written list of their observations about local bicyclists for a given period of time such as one or two days, or a week. Examples of observations can include

- Where are the cyclists riding--on sidewalks, streets, highways?
- Who is riding--students, commuters, women, children, the elderly?
- Are cyclists riding safely--on the right side of the road, using lights at night, making proper signals, not speeding?
- Are cyclists suffering interference from trucks, cars, taxis, pedestrians?
- Are cyclists, while riding or parking their bicycles, interfering with auto traffic or pedestrians?

After collecting their observations, students read their results to the class. The class then discusses what facilities, such as bike paths and parking facilities, are needed to accommodate bicycles in their community. For example, if cyclists are parking their bikes on the sidewalk and interfering with pedestrian movement, where and what kind of bicycle parking facilities are needed?

Evaluation Method:

Students write short biographies of "a day in the life of" a classmate that indicate what bicycle facilities that classmate could benefit from, and why.

Variation and Supplementary Activity:

The activity can be assigned as a written homework report.

ACTIVITY #32

Mini-unit Topic: Identifying Bicycle Facilities

Approximate Class Time: 3-5 periods, plus out-of-class time

Capsule Activity Description: Students obtain a map of their community and plot and publicize bicycle trails for recreation and commuter transportation.*

Goal:

To know the various steps which go into planning and developing a desirable bike route for transportation or recreation in the community.

Concepts Treated:

- Planning of bicycle routes is a relatively complicated activity, calling for several research- and activity-oriented steps.
- Once planning has been undertaken, it may be necessary to undertake community action in order to make routes safer or more convenient.

ACTIVITY

Small groups of students obtain or are provided with maps of local community and are given written instructions to

1. Orient themselves to the map by identifying familiar points, such as your homes and schools. Mark these on the map.
2. Identify one to three trips they, their friends, or the townspeople would like to be able to make by bicycle. These might be trips from home to school, home to shopping centers or lakes, or just scenic trips. Since they do not all live in the same neighborhood, they may have to compromise on the starting point for their route.
3. Decide as a group what they want in a bike route in terms of safety, convenience, and fun. Develop a check list under each of these items--for example, under safety you might have wide streets, few cars, and low speed limits.

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*This activity also appears in Mini-unit 1.

4. Plot on the map the best bicycle route for making the trip, keeping in mind their checklist. It is necessary that they be familiar with all the streets they may want to use on their route so that all possible dangers can be avoided.

5. Decide on how and when to take a test bicycle ride over the route(s) they have picked. They may want to divide up or all go together on the trip(s). Then test drive the routes, looking for the items they identified in relation to safety, convenience, and fun.

When each group has completed its test drives, the groups reform and compare notes about their routes--whether they are viable bike routes, whether some parts of the routing need to be changed (and if so, how) or whether there is no good bike route between the points they identified. Each group then reports its routes to the class. The class selects one or two routes it feels would be most used by the community's bicyclers and divides into small groups, each one of which develops its own strategy for publicizing or making safe those routes. Different groups can, for example

- Draw routes on a community map, reproduce the map, write up commentary for it, and distribute copies to classmates and/or community residents

- Prepare and give a presentation to the police department informing it that there may be increased use of bicycles along these routes and asking what police and bicyclers can do to make these routes safe for bicyclists

- Prepare and give a presentation to the relevant community officials asking to have the routes identified in community literature and on street signs as bicycle routes (it may be possible to have a separate bike lane marked off or built)

- Prepare and give a presentation to local news media asking them to publicize the routes

- Prepare a brochure for dissemination by bicycle dealers to inform new bicycle owners about available bike routes

Each group reports to the class about its publicity efforts and considers what further actions, if any, need to be taken to make the routes safe for bicycling.

Evaluation Methods:

Students poll classmates or bicyclists in the community one month after the activity to determine whether these individuals are aware of the routes and use them.

Students present the results of their efforts to a bicycle club for evaluation.

Variations and Supplementary Activities:

This activity can be adapted to the issue of bicycle parking facilities.

Students can plan a bicycle path in their community.

MINI-UNIT 8

ENGAGING IN BICYCLE PROJECTS

The most effective way to learn about bicycles is to engage in projects which involve actively *doing* something related to bicycling issues. This mini-unit engages students in a variety of "hands-on" activities in which they learn about the following aspects of bicycling:

- Using bicycles for recreational purposes
- Using bicycles for commuting purposes
- Bicycle riding skills
- Bicycling safety
- Bicycle safety education
- The attitudes of automobile drivers toward bicyclists
- The public's knowledge of and attitudes toward bicycling
- Resolving disputes between bicycle salespersons or repairpersons and consumers
- The use of bicycles in other countries and historical periods

An initial discussion activity in the unit has students first examine why people ride bicycles and what the advantages and disadvantages of bicycle riding are.

The best way to implement this mini-unit is for your students to select the activity that interests them most and then to divide into small groups based on the activities they have chosen to pursue. Each group then conducts its project and reports its findings back to the class. In this manner the entire class can benefit from each group's research.

MINI-UNIT 8 LESSON PLAN

Engaging in bicycle projects

Activity #	*Activities*	*Class Time*
33[a]	DESCRIPTION: Students discuss why adults, teenagers, and children buy and ride bicycles and the advantages and disadvantages of bicycling. GOAL: To be familiar with the variety of reasons people bicycle and realize that how one plans to use a bike should influence the kind of bike one buys.	1-1½ periods
34	DESCRIPTION: Students plan, engage in, and evaluate different recreational bicycle activities. GOAL: To be aware of the various types of recreational bicycling activities available to them, how to plan for these activities, and the benefits of engaging in them.	2-4½ periods, plus out-of-class time
35	DESCRIPTION: Students demonstrate, in a series of experiments, the potential use of bicycles for commuting. GOAL: To be aware of the potential advantages and disadvantages of commuting to school or work by bicycle, as opposed to other forms of transportation.	2-3½ periods, plus out-of-class time
36	DESCRIPTION: Students engage in bicycle riding skill development activities that are designed to promote safe riding. GOAL: To be able to demonstrate bicycle-riding skills in areas such as balance ability, speed coordination, etc.	½ period, plus out-of-class time

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[a] This activity also appears in Mini-unit 1.

MINI-UNIT 8 LESSON PLAN (CONTD.)

Engaging in bicycle projects

Activity #	*Activities*	*Class Time*
37	DESCRIPTION: Students discuss and evaluate bicycle safety rules as they apply both to younger and older age groups, including adult motorists. GOAL: To come to an understanding of how bicycle safety rules apply to age groups other than one's own.	2-10 periods
38	DESCRIPTION: Students design and administer two polls: one to determine the public's attitudes toward and knowledge of bicycle safety, the other to learn the attitudes of automobile drivers toward bicyclists. GOAL: To be aware of the attitudes of various residents in the local community toward bicycle safety.	4-5 periods, plus out-of-class time
39	DESCRIPTION: Students form a committee to act as an ombudsman for bicycle-related complaints, mediating between cyclists and merchants and repairpeople. GOAL: To learn under what circumstances redress of bicycle-related grievances is justified and under what circumstances the person seeking redress is likely to be successful.	½-1 period, plus out-of-class time
40	DESCRIPTION: Students research the history and use of the bicycle in the United States and other countries and study bicycle laws and transportation-related issues. GOAL: To learn about how bicycles are and should be used, to determine how bicycle use may vary from one country to another and from one historical period to another, and to decide whether these variations have any implications for future bicycle- and general transportation-related planning.	½-6½ periods, plus out-of-class time

ACTIVITY #33

Mini-unit Topic: Engaging in Bicycle Projects

Approximate Class Time: 1-1½ periods

Capsule Activity Description: Students discuss why adults, teenagers, and children buy and ride bicycles and the advantages and disadvantages of bicycling.*

Goal:

To be familiar with the variety of reasons people bicycle and realize that how one plans to use a bike should influence the kind of bike one buys.

Concepts Treated:

- People ride bicycles for many different reasons, including pleasure, exercise, transportation to and from work, and transportation to and from school.
- The type of bicycle that a person buys should depend on a number of different criteria, including the person's age, his or her size, and the purposes for which he or she is planning to use the bicycle.

ACTIVITY

Students write a brief (½ page) description of the bicycling habits of one bicycle-riding adult, teenager, and child they have seen in real life or in the media. On a separate page, students explain why they think these individuals bicycle.

During the following class period, students divide into small groups and are given written instructions to

1. Read each other's papers.
2. Discuss and record the reasons *why* people bicycle, carefully distinguishing between adult, teenage, and child bicyclists.
3. Put these reasons in order from the least to the most common reasons.
4. Try to decide whether people have different reasons for bicycling depending on personality, age, sex, economic position, and residence.

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*This activity also appears in Mini-unit 1.

5. Decide and record what kinds of bicycles are best suited for people who ride for different reasons. To do this you may want to use a chart similar to that described under Variation and Supplementary Activity.

The groups report their conclusions to the class and respond to comments and questions from you and the class.

Next, conduct a class discussion on reasons people might want to buy or ride a bicycle and reasons why they might not.

Advantages of owning and riding a bike that can be discussed include

- Bicycling is an inexpensive way to travel, compared to travel by car.
- Bicycling is faster than walking and more efficient in its use of body energy.
- Bicycling can be faster than traveling by car when there is a lot of traffic.
- There are often fewer parking problems for bicycles than for cars; in addition, it may be possible to park a bike closer to one's destination than a car can be parked.
- Bicycling conserves fuel resources.
- Bicycles do not pollute the air.
- Bicycling promotes health by providing exercise and an opportunity to get outside.
- Bicycling is fun for both adults and children.
- Bicycling can be relaxing, both in its own right and compared to driving a car in traffic.
- Bicycling can afford opportunities for meeting interesting people.

Disadvantages to owning and riding a bike that can be discussed include

- Bicycling can be unsafe, particularly in traffic. (However, driving an automobile and walking may be as dangerous or more so per mile traveled.)
- Bicycles are expensive.
- Bicycles are easily and frequently stolen.
- Bad weather--rain, cold, snow, and wind--make bicycle riding unpleasant or impossible.
- Bicycles cannot be used conveniently over long distances that must be traveled quickly.

- Smog and pollution, particularly from car exhausts, can make bicycling unpleasant and unhealthy.

- Owning a bicycle requires some maintenance.

- It is difficult or impossible to transport many things on a bicycle.

- It is difficult and risky (in terms of damage or sweating) to wear good clothing while bicycling.

- Riders must have a minimum of good health and physical dexterity to ride a bicycle.

Evaluation Methods:

Each student writes a scenario involving an individual's need to get somewhere within the community. Students exchange scenarios and each student evaluates whether using a bicycle would be a good way to meet the transportation need described in the other student's scenario.

Students role-play a reporter interviewing a man-in-the-street on why he rides or does not ride a bicycle.

Students role-play a consumer advisor helping someone decide on the type of bicycle to buy, based on how it will be used.

Variation and Supplementary Activity:

Create a decision chart by listing the reasons why people bicycle (identified in Steps 2 and 3 in the activity) down the left side of the page. List the possible types of bicycles across the top of the page. Students should make a check in the appropriate box on this chart whenever they agree that a particular type of bicycle is well suited to a reason or purpose for bicycling.

ACTIVITY #34

Mini-unit Topic: Engaging in Bicycle Projects

Approximate Class Time: 2-4½ periods, plus out-of-class time

Capsule Activity Description: Students plan, engage in, and evaluate different recreational bicycle activities.

Goal:

To be aware of the various types of recreational bicycling activities available to them, how to plan for these activities, and the benefits of engaging in them.

Concepts Treated:

- Many different types of activities are available for bicycle recreation.
- Bicycle recreation activities involve a certain amount of planning, including obtaining equipment, choosing sites for the activity, etc.

ACTIVITY

One or more small groups of students plan and engage in one or more recreational bicycle activities and then evaluate the experience.

Groups begin by deciding what general activity or activities they want to engage in, such as races, touring, games, or fixing up their bikes. They then decide what specific type of races (touring, etc.) to engage in.* Groups plan their activity (obtain needed equipment, select routes and sites, identify referees, etc.) and submit plan to one other group for preliminary evaluation. Finally, each group identifies what the objectives are of its activity--why it is doing it and what it hopes to get out of it (e.g., fun, exercise, seeing new places, meeting new people).

After engaging in the activity, each group evaluates it in terms of

- Whether it enabled the group to achieve its objectives and if not, why not

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*Sample activities are provided at the end of the activity.

- Whether it provided other rewards beyond the expected ones
- What kind of physical condition cyclists need to be in to engage in the activity
- What facilities and equipment are needed and where they can be obtained to engage in the activity
- What safety hazards the activity involves and how the hazards can be minimized or eliminated

Groups prepare a report on their experiences and present it to the class, responding to comments and questions from you and the class.

Evaluation Method:

Students write a brief brochure for other bike riders who might want to engage in these activities on how to plan for and execute them.

Variations and Supplementary Activities:

Students can teach younger students about recreational activities.

Students can write their experiences into an article for publication in school and community newspapers.

Groups can engage in each other's activities, see if the results in terms of the above points are different, and analyze any differences that are discovered.

SAMPLE BICYCLING ACTIVITIES

Touring

Touring is bicycling for pleasure in the countryside or suburbs for fifteen or more miles, one to several days. Two types of touring are *conventional* touring, where the cyclists travel light and use restaurants and motels for accommodations, and *camping* touring, where cyclists pack sleeping gear and cooking utensils and rough it. Discussion for both types of touring can center on

- The relative advantages and disadvantages of each.
- Equipment needed, such as spare tire, first aid kit, tools, and lightweight camping equipment.
- Transporting bicycles to desired touring locations, using trains, ferries, buses, planes, and cars. There are two types of car racks, rear end racks and roof racks. The advantages and disadvantages of each can be discussed.
- Concern for wind problems.
- Loop trips, in which the cyclists return to their point of departure without retracing their route.
- Organizations that can assist tourists, such as

  American Automobile Association (AAA)
  Local Office or
  1712 G Street, N.W.
  Washington, D.C. 20006.

- Publications that can assist tour planning, such as

  U.S. Geological Survey Topography Maps
  Distribution Section
  1200 South Eads Street
  Arlington, Virginia 22202

  North American Bicycle Atlas
  c/o Books About Cycling
  P.O. Box 208
  Nevada, California 95959.

Racing

There are two major categories of bicycle racing: informal and organized. Organized racing is often conducted at colleges with teams. Information on other forms of organized racing can be obtained from the Amateur Bicycle League of America, 4233-205th Street, Bayside, Long Island, NY 11361. Informal racing can involve

Speed races

Endurance races

Cross-country racing

Slalom racing

Coasting

"Snail" racing (going as slowly as possible)

Sprinting

Pursuit racing (trying to catch up with another bicyclist)

Equipment

There are all kinds of ornaments and decorations that can be painted on or otherwise added to bicycles, such as flags, mirrors, roll bars, radios, tassles, odometers, crepe paper, playing card noise makers in spokes of the wheels, flowers (real and plastic), and wild paintings and colors. Although organizations are hardly necessary to add these ornaments, clubs can make their creation more fun.

Games

There are many bicycle games that can be discussed, some of which are moderately dangerous if necessary precautions, like padded clothing and helmets, are not taken. Other games require using an old bicycle since they may involve damage to participating bicycles. Examples of bicycle games are provided on the following pages. Other games include scavenger hunts, obstacle drops, and relays. These games can be discussed in terms of needed equipment, safety considerations, convenience, and forming clubs to engage in them. For rules of bicycle polo, write to the

U.S. Bicycle Polo Association
Carlos F. Concheso
P.O. Box 565
FDR Station
New York, NY 10022

BIKE GAMES AND RACES*

Slow or Snail Ride

The object of this funny game is to see which rider can travel slowest. The last rider to cross the finish line wins. Any type of bicycle can be used.

Lay out a course 50 to 100 feet long with several lanes three to six feet wide. Assign a lane to each rider. Run several heats if necessary. At a signal, each rider gets underway at the starting point, riding as slowly as possible. Disqualify any rider who does not stay in his lane, who touches a foot to the ground, or who turns around. Appoint a referee to be sure rules are obeyed.

The last rider to cross the finish line is the winner. If several heats are run, have winners "race" in a run-off.

Grab Bag

A variation of musical chairs, this game is played by having playground equipment or other objects suspended from ropes. Riders grab the objects while their bikes are in motion. Those who fail to grab objects when the "stop" signal is given must drop out. The rider remaining in the game longest wins.

Large balls or other objects lying on the ground can also be used in a pick-up version of the game. Confine the riders within definite boundaries.

Pick and Put

This game is designed to develop sprint technique and the ability to mount and dismount a bicycle quickly. It requires two goals at least 50 feet apart.

Choose two teams with an even number of riders on each. Select ten or fewer small objects--potatoes, empty cans, stones, rubber balls--which a rider can carry in one hand. Draw two two-foot circles side-by-side at each end of the course. Place half the small objects in one circle at one end, the others in one circle at the other end.

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*Games should be chosen according to the ability and experience of the bicyclists, space, and equipment available. Reprinted from the

Guide for Leaders: 4-H Bicycle Program
U.S. Department of Agriculture
Extension Service
Washington, D.C. 20250.

Object of the game is to transfer all objects in one circle to the empty circle at the opposite end before the opposing rider can do the same thing. Only one object is carried at a time.

Teams line up at opposite ends. At a signal, one member of each team mounts his bike and rides to the other end, dismounts and picks up an object from the circle. He then remounts and rides back to the starting point, dismounts and places the object in the empty circle. He continues this routine until all objects from the other end have been transferred to this team's end.

The rider who finishes first earns ten points for his side. In case of a tie, points are split. If a rider drops the objects enroute, he is disqualified and the other team scores. If riders collide or if one becomes dismounted but retains his object, riders may remount and continue the game.

The game continues until all riders have completed the course. Highest scoring team wins.

Paul Revere

This is a speed test. Select two teams with the same number of riders on each side. Have them line up astride their bikes in two lines 30 feet apart. Space members five feet apart in line.

Players count off from right to left. When the leader calls off a number, the two players with that number mount their bikes and ride clockwise around both lines and back to their starting points. The rider arriving last drops out of the game.

After all numbers have been called, the team with the most riders left wins.

Shipwrecked

Select a large playground or parking lot. Line up all players on one side, side-by-side facing the center of the lot. Place a large piece of paper, sandbag, or other target made of something soft and harmless in the open area.

Each player in turn rides forward, is blindfolded, and rides out to mark the target. Other players on bikes surround him at a safe distance and clap their hands when he gets warm, reducing their clapping as he goes away from the target. When he thinks he has reached the target, the blindfolded rider gets off his bike and marks the spot with a stick or other marker.

The rider who comes closest to the target wins the game.

Hitting the Target

This game requires skill and good coordination. Set out four to six coffee cans, bowls, or other receptacles in a row about 15 feet apart along a 100-foot course. If the ground is soft, press the containers into the ground with open end up.

Give each rider a supply of marbles, bottlecaps, small stones, or similar objects. Contestants then ride along the course dropping a marker in each can. Award one point for each hit.

A variation of this game is to number each rider and each can. Each rider is required to drop his marker in the can with his number on it. Riders who miss their cans are eliminated. Repeat the course until only one rider is left as the winner.

Spud

This game is played in a large open area with a softball or volleyball. One player becomes "it" and stands with his bike and the ball in the center of a circle. The other players ride their bikes around the circle until "it" calls one of their names and tosses the ball into the air.

The player whose name is called rides for the ball, dismounts and picks it up. Meanwhile, the other riders scatter, including "it."

When the person called has retrieved the ball, he yells, "Halt," and every rider must stop immediately, straddling his bike. The player with the ball returns to the center of the circle and attempts to hit one of the other bikes by rolling the ball at it. Riders cannot move themselves or their bikes, and thrower cannot move away from center of the circle. If thrower misses bike, one dud is counted against him and he becomes "it." If he hits the bike with the ball, that player gets one dud and becomes "it."

When a player gets three duds, he is disqualified or penalized in some manner.

Pursuit Race

This is an elimination race determined by speed. Line up all contestants about three feet apart at the starting line. Start the race with a whistle or other signal.

Object of the race is to pass the leader. As the leader is passed by another rider, he must drop out. This continues until only one rider is left and he crosses the finish line.

Mixed Distance Race

This is a relay race with each team member riding a different number of laps. It is most interesting when the distances are mixed with fewer laps coming at either end or as sprint laps.

As a contestant completes his required number of laps, he passes a baton or touches the hand of his successor. The team that finishes first is the winner.

Reds and Whites

Select two teams, "Reds" and "Whites." Lay out a 200-foot field with a center line, two lines ten feet back from the center on each side, and end lines 100 feet from the center.

Players line up five feet apart on their own line ten feet back of the center line. Teams face each other.

A starter stands at the end of the center line and tosses a red and white disc. He calls the side that comes up. The players on the side not called mount their bikes, turn around and ride as fast as possible to their own back "safety" line. The team whose color is called mounts and chases them, tagging as many of the other team as possible before they cross the safety line.

Those tagged become members of the other team. The winning team is the one with the most players after a limited number of tosses of the disc.

Ride, Sheep, Ride

Divide riders into teams, "Sheep" and "Hunters," and select a home base. While the Hunters close their eyes or remain indoors, the Sheep and their leader ride out to hide. They agree on a set of signals to be called by their leader. These might include short or long horn blasts, a whistle, or special words such as "Indians" or "Cowboys" meaning "lie low," "move up toward base," "get ready to ride for home" or other commands.

When all Sheep have been hidden, the leader returns to home base and rides out with the Hunters. He calls signals as appropriate to keep his team from being discovered. When he thinks the Hunters are off guard or far enough away, he yells, "Ride, Sheep, Ride!"

At this signal the Sheep emerge from their hiding places and ride fast for home base. Hunters also race for home. The full team that arrives home first wins. This team is the "Sheep" for the next game.

If cover is not plentiful, it may be necessary to divide your group into several teams of "Sheep" and "Hunters" with different home bases.

Tug-O-War

This is a game of team strength and endurance. Stretch a long rope on a level surface, tie a handkerchief in the middle, and put out markers or stakes four yards apart.

Line up the two teams on opposite sides of the markers with the rope stretched between them so that the handkerchief is midway between the two markers. Riders face away from the middle. Each player grasps the rope with one hand. At the command, "Ready," he mounts his bike and establishes balance by a slight, even pull on the rope. On the command, "Go," all riders pedal hard and pull on a rope.

Object is to pull the handkerchief past the marker on your side. If a rider's body or foot touches the ground, he is disqualified and the game continues without him.

Run and Ride Race

Contestants in this race start by either riding or running beside their bikes for a given distance. They then change to the opposite, alternating as often as desirable until they complete the course.

Simple Relay Race

Line up teams in single file behind starting line. At the signal, first player on each team rides out to goal 100 feet away, turns around and rides back, touching off second rider. He then takes his place at rear. Players move up to starting line as their turn approaches. Winner is team whose last man returns to starting line first.

Plank-riding Race

Lay out a series of wooden planks, five to six inches wide, for a distance of at least 150 feet. Contestants try to ride the entire distance without running off the planks. The rider who completes the course in the fastest time with the fewest slips off the planks is the winner.

Potato Relay

Obtain four to six potatoes for each team. Place potatoes in a box or basket at the starting point for each team. Mark off a series of circles five yards apart in front of the box.

Start the game with all potatoes (blocks, stones, etc.) in the box. First rider takes one potato, places it in first circle, and returns to the starting point. Second rider takes second potato and places it in second circle. Repeat until all potatoes have been placed in circles. Then reverse procedure, retrieving one potato at a time. Team that finishes first wins.

Game can be varied by having one player on each team place all potatoes before second player takes his turn. Game can also be reversed with all potatoes placed in circles at beginning and retrieved and replaced one by one.

If only a few players are available, game can be played as race against time with fastest player declared winner.

Dizzy Relay

Place round poles or other objects players can ride around from 50 to 100 feet in front of starting point. Line up teams in single file.

At signal, first rider on each team rides to goal and circles it at least three times. If pole is used, he keeps one hand on it as he rides around. He then returns to base and tags next rider on his team who repeats procedure. Team finishing first wins game.

Files should be at least ten feet apart and all riders should circle poles in same direction to avoid collisions.

ACTIVITY #35

Mini-unit Topic: Engaging in Bicycle Projects

Approximate Class Time: 2-3½ periods

Capsule Activity Description: Students demonstrate, in a series of experiments, the potential use of bicycles for commuting.

Goal:

To be aware of the potential advantages and disadvantages of commuting to school or work by bicycle, as opposed to other forms of transportation.

Concepts Treated:

- Many forms of transportation, both public and private, are available for commuting from home to school or work.
- Each form of transportation, including the bicycle, has certain advantages and disadvantages for commuting.
- Other conditions, such as traffic and weather, also affect the desirability of different transportation modes for commuting.

ACTIVITY

Students in small groups compare different forms of transportation used for commuting from home to school or work by traveling the same routes with different vehicles. The purpose of the activity is to weigh the advantages and disadvantages of commuting by bicycle. The groups use a map of the community and plot out a commuter route used by many community persons. An arbitrary "home" is selected for the starting point, and a factory, school, or large place of employment is selected as the destination.

Students decide which modes of travel they will use other than bicycling, such as car, bus, or rapid transit. The groups then determine what should be observed during the trip, such as

- How long the trip takes and what delays or speeds it up
- How weather conditions affect the trip's speed, comfort, and safety

- What safety practices or regulations are or are not observed

- How traffic conditions affect the trip's time, safety and comfort

- What the commuter's mental attitudes are before and after the trip--relaxed? jittery?

- Other characteristics of the trip that affect speed, safety, and comfort, such as baggage and clothing

The groups should be aware that the experiment will not be a reliable indicator of the advantages and disadvantages of commuting by bicycle if the participants take special pains to make their trip as fast as possible (or faster than normal).

The groups decide when to make the trip--morning or afternoon rush hours--and set specific starting times. They also decide who is going to use which modes of transportation. After completing the trips, the groups compare individual results and draw appropriate conclusions about which mode is best, and why. In particular, the groups discuss the advantages and disadvantages of bicycle commuting. The groups prepare and present a report to the class, responding to comments and questions from you and the class.

Evaluation Methods:

Students role-play scenarios in which proponents of different modes of commuting argue the merits of their chosen mode.

The class debates the proposition, "Resolved, that it makes more sense in terms of safety, energy conservation, speed, and comfort to use a bicycle to commute from the Heights to the Frodo Furniture Factory."

Variations and Supplementary Activities:

Students determine reasonable commuting distances for bicycle travel in their area.

Students can compare modes during off-peak hours.

Students who cannot take trips can take traffic counts at several strategic spots along a commuter route. Students analyze the results in terms of how traffic might affect different modes of commuting.

Students can compare the costs of parking bicycles and cars.

Students can discuss whether and how the bicycle can be promoted as a method of commuting.

ACTIVITY #36

Mini-unit Topic: Engaging in Bicycle Projects

Approximate Class Time: ½ period, plus out-of-class time

Capsule Activity Description: Students engage in bicycle-riding skill development activities that are designed to promote safe riding.

Goal:

To be able to demonstrate bicycle-riding skills in areas such as balance ability, speed coordination, etc.

Concept Treated:

- Practice in certain exercises can add to a bike rider's ability to handle his or her bike better in dangerous or surprise emergency situations on the road.

ACTIVITY

Students engage in and evaluate bicycle-riding skill development exercises and discuss how these relate to bicycle safety. Sample exercises at the end of this activity and instructions below are taken from the Maryland Department of Education's *Teacher's Guide for Bike Basics*.

Lay out each activity as indicated by the following illustrations on a playground, parking lot, etc. using chalk or masking tape. The measurements are provided with each activity, as are the purpose, suggested scoring method, and the nature of the task to be accomplished.

A suggested proficiency progress record form is also provided for possible reproduction. This record form and the design of the activities place emphasis upon self-improvement and not on competition between students.

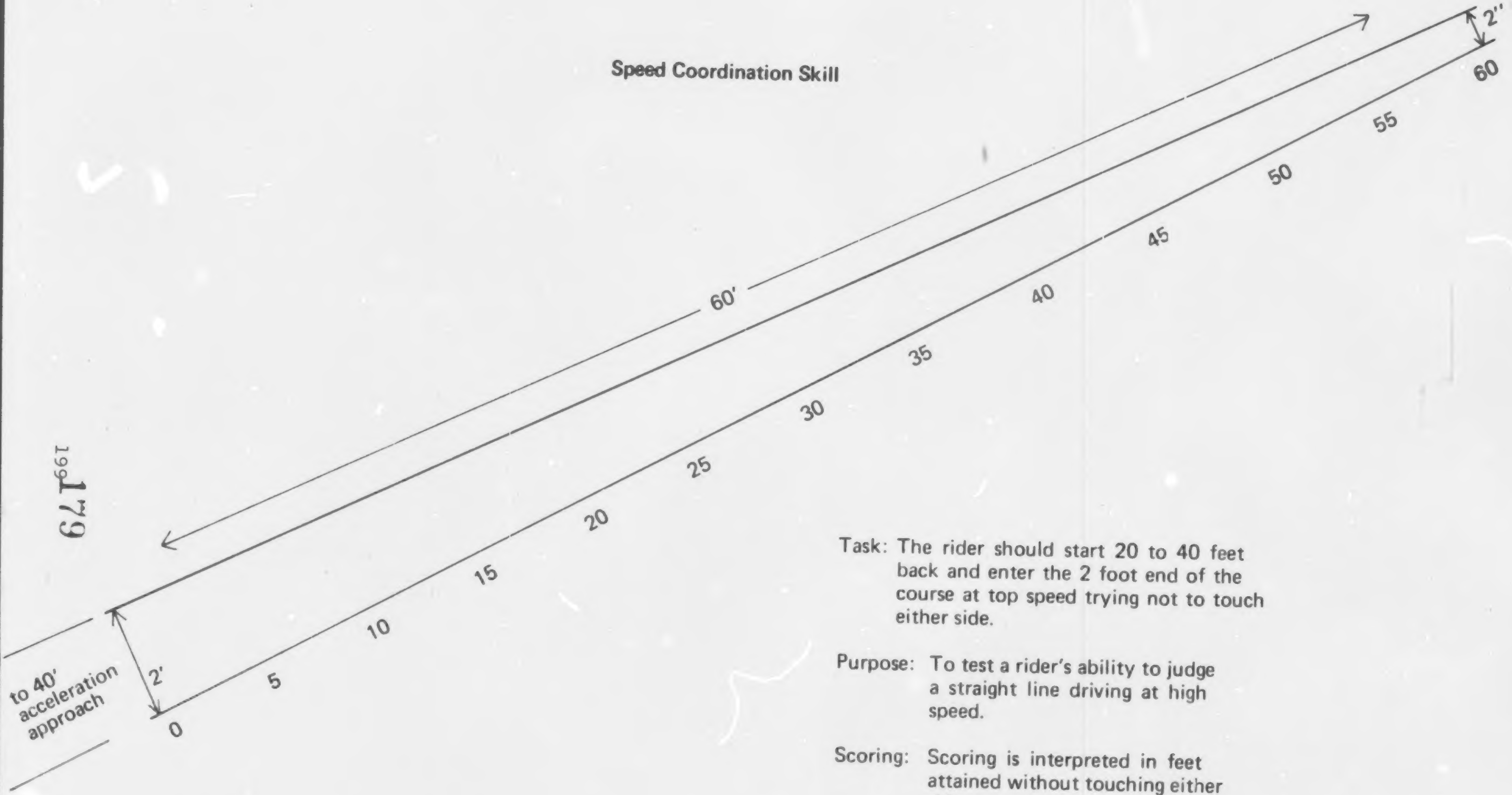
If possible, the entire series of activities should be made available to students over an extended period, such as during free periods, during physical education classes, or as an after-school activity. This will allow students the time to become proficient in each exercise.

Students who do not own or have access to a bicycle can act as inspectors or time-keepers for the exercises.

Evaluation Method:

Students will take a practical test in the various skill areas covered.

Speed Coordination Skill

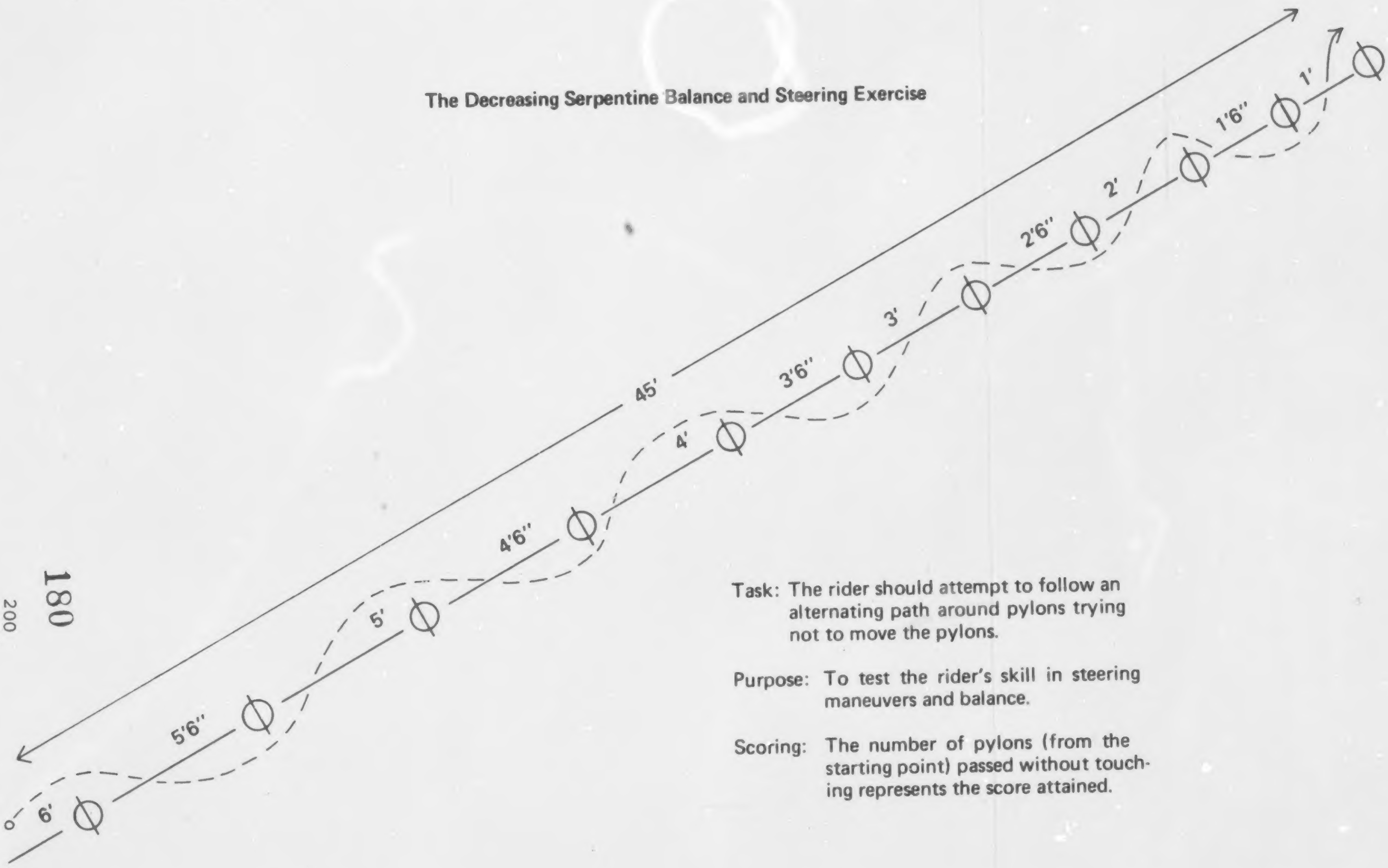


Task: The rider should start 20 to 40 feet back and enter the 2 foot end of the course at top speed trying not to touch either side.

Purpose: To test a rider's ability to judge a straight line driving at high speed.

Scoring: Scoring is interpreted in feet attained without touching either side.

The Decreasing Serpentine Balance and Steering Exercise

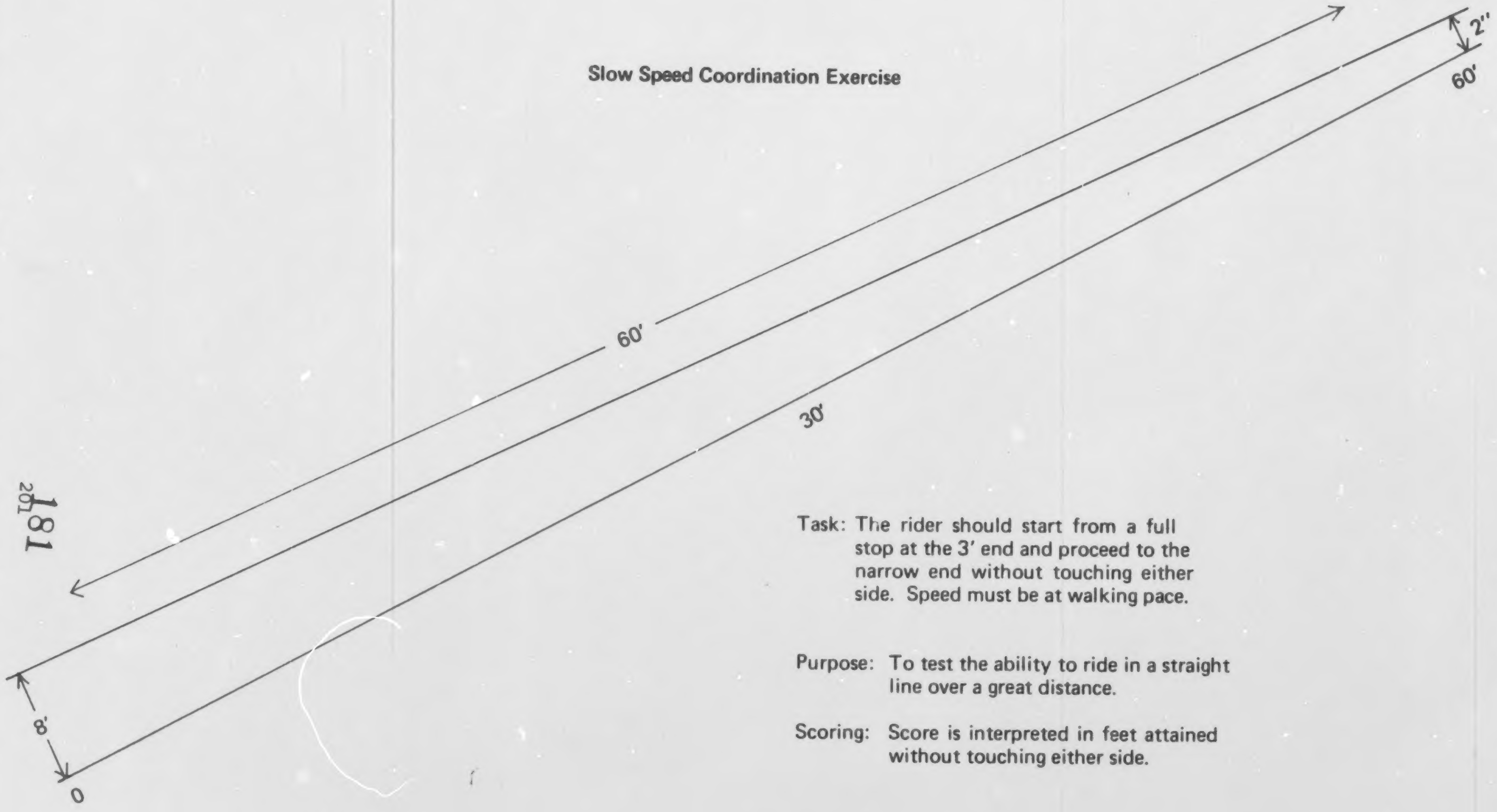


Task: The rider should attempt to follow an alternating path around pylons trying not to move the pylons.

Purpose: To test the rider's skill in steering maneuvers and balance.

Scoring: The number of pylons (from the starting point) passed without touching represents the score attained.

Slow Speed Coordination Exercise

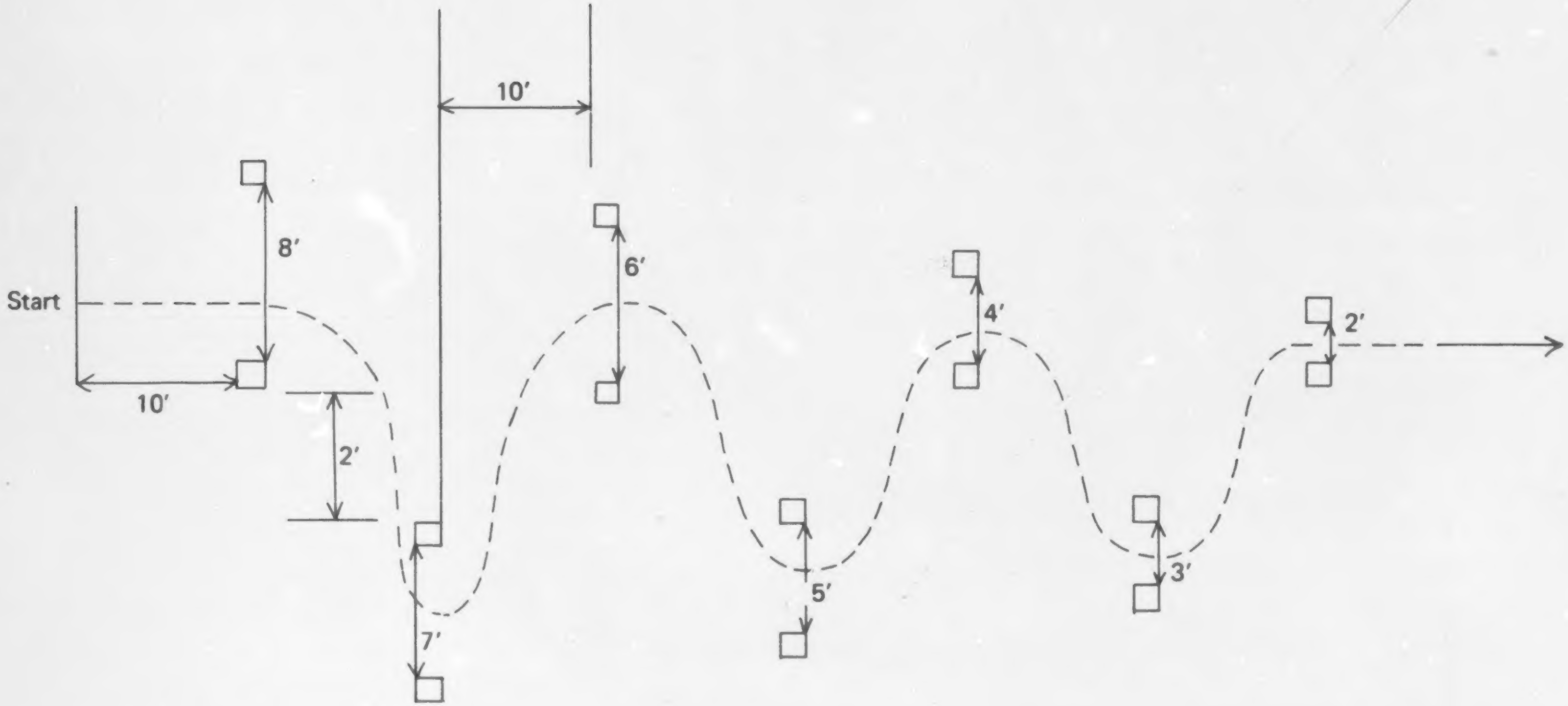


Task: The rider should start from a full stop at the 3' end and proceed to the narrow end without touching either side. Speed must be at walking pace.

Purpose: To test the ability to ride in a straight line over a great distance.

Scoring: Score is interpreted in feet attained without touching either side.

Decreasing Space Maneuvering Exercise

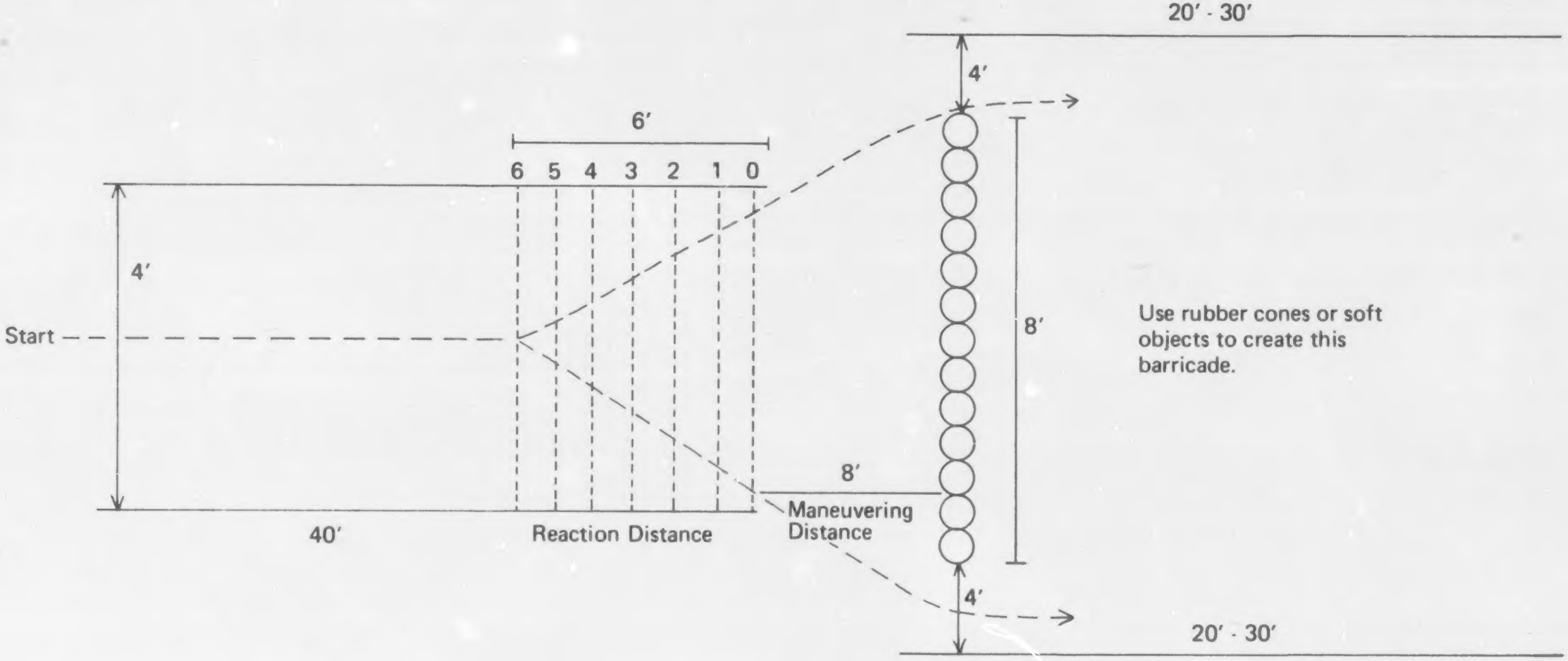


Task: Driving at a slow rate of speed, the rider must put both wheels through each pair of obstacles without his or her tires touching the obstacles and without his or her feet touching the ground.

Purpose: To increase the rider's ability to gauge space and distance.

Scoring: Score is determined by the number of obstacles successfully passed.

Right or Left Evasion Exercise

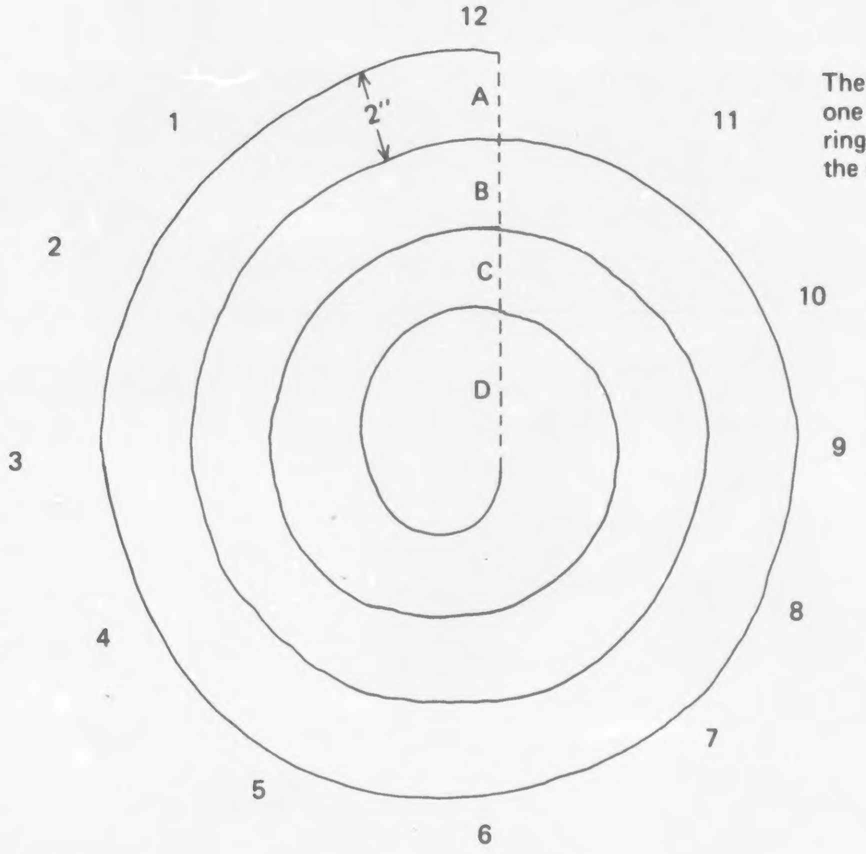


Task: The rider should drive his or her bicycle at a very fast pace toward the center barricade line. When the rider reaches a pre-selected line, a judge gives the command right or left. The rider must maneuver his or her bicycle in that direction without hitting the barricade or going over any lines. If the child successfully maneuvers his or her bicycle through the obstacle course, the judge moves to the next shorter reaction distance line.

Purpose: To test the bicycle rider's skill in interpreting and reacting to a sudden situation.

Scoring: Score is interpreted in terms of reaction distance needed to maneuver through the course. Feet of reaction distance successfully completed would be the score. (0 would be an excellent score.) Difficulty may be changed by adding or subtracting the reaction distance and the maneuvering space.

Left Spiral Exercise



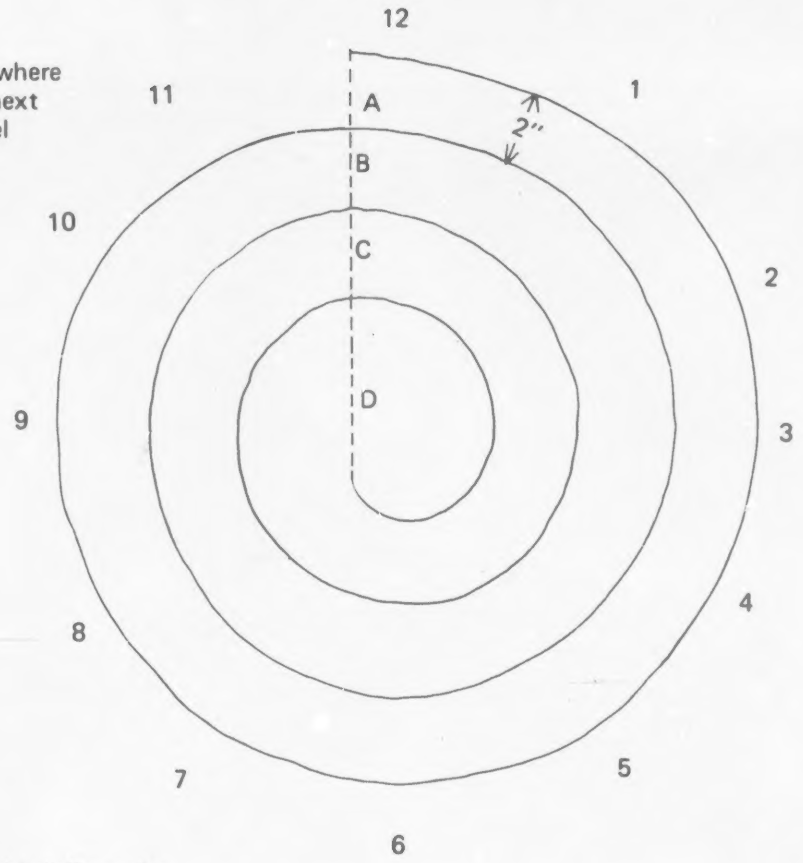
The dotted line shows where one ring ends and the next ring begins as you travel around the spiral.

Task: The rider should follow the spiral path to the center without touching any boundary lines.

Purpose: To develop a bicycle rider's left turning skill and balance.

Scoring: Score is determined by a clock number (counterclockwise) and by a lettered ring. The score is taken from the distance reached at the point the first line is touched. For example, a score of C-9 would say the child touched his first line in Ring C and at 9 o' clock. Each lettered ring represents one complete circle to the next ring. 12 o'clock represents a transition to the next ring.

Right Spiral Exercise



The dotted line shows where one ring ends and the next ring begins as you travel around the spiral.

Task: The rider should follow the spiral path to the center without touching any boundary lines.

Purpose: To develop a bicycle rider's right turning skill and balance.

Scoring: Score is determined by a clock number and by a lettered ring. The score is taken from the distance reached at the point the first line is touched. For example, a score of C-9 would say the child touched his first line in Ring C and at 9 o'clock. Each lettered ring represents one complete circle to the next ring. 12 o'clock represents a transition to the next ring.

Bicycle Skill Progress Record

NAME________________________________

Score each activity as indicated on each exercise description. Record only those scores that show a definite improvement and give the date of improvement.

Exercise	*Score*	*Date*	*Score*	*Date*	*Score*	*Date*	*Score*	*Date*	*Score*	*Date*
Balance ability	____Min. ____Sec.		____Min. ____Sec.		____Min. ____Sec.		____Min. ____Sec.		____Min. ____Sec.	
Speed coordination	____Feet		____Feet		____Feet		____Feet		____Feet	
Decreasing serpentine	____Pylons		____Pylons		____Pylons		____Pylons		____Pylons	
Slow-speed coordination	____Feet		____Feet		____Feet		____Feet		____Feet	
Decreasing space	____Obstacles		____Obstacles		____Obstacles		____Obstacles		____Obstacles	
Right or left evasion	____Feet		____Feet		____Feet		____Feet		____Feet	
Left spiral	____Ring ____O'clock		____Ring ____O'clock		____Ring ____O'clock		____Ring ____O'clock		____Ring ____O'clock	
Right spiral	____Ring ____O'clock		____Ring ____O'clock		____Ring ____O'clock		____Ring ____O'clock		____Ring ____O'clock	

ACTIVITY #37

Mini-unit Topic: Engaging in Bicycle Projects

Approximate Class Time: 2-10 periods

Capsule Activity Description: Students discuss and evaluate bicycle safety rules as they apply both to younger and older age groups, including adult motorists.

Goal:

To come to an understanding of how bicycle safety rules apply to age groups other than one's own.

Concepts Treated:

- Younger children often have different ideas about bicycle safety; some of these may be quite practical and others might be inappropriate or even dangerous. In the latter case, special ways of teaching bicycle safety may be useful for youngsters.
- Even adults need education in bicycle safety rules; this education is equally important for adult bicycle riders and for automobile drivers who may, through ignorance, endanger bicycle riders on the road.

ACTIVITY

First, bicycle riding and safety rules in regard to younger children are discussed and evaluated. Students break into small groups and agree on rules for bicycle riding for girls and boys younger than themselves (see Activity 12 for procedure).

Each small group decides on two younger boys and two younger girls it would like to invite to class to discuss the rules with. (Younger brothers and sisters are excluded to avoid embarrassment on either side.) Articulate youngsters should be selected.

You and the class contact the younger children to provisionally invite them, and you then contact their parents for permission. The invited children meet with the small groups in class and respond to the rules the older students have decided upon. The group tries to come up with an amicable compromise.

During the next period, the groups report their results to the class and respond to questions and comments from you and the other students. The groups should especially comment on the extent to which the younger students disagreed among themselves about the rules.

In the second part of this activity, the class breaks into small groups, and each group decides how automobile drivers should drive when confronted by a bicyclist on the road. Possible behaviors include

- Slowing down
- Being especially observant in parts of town where cyclists frequently ride
- Not honking horns or otherwise trying to scare bicyclists
- Being aware that cyclists have equal rights on the road, as long as they do not unreasonably obstruct traffic
- Realizing that bicycling is a viable and possibly preferable method of transportation in relation to automobiles
- Realizing that bicycling is a viable way of commuting

Each group discusses how these behaviors can be encouraged in automobile drivers through driver education courses.

Each group presents its curriculum to the class, and the class as a whole develops a single curriculum unit for use in driver education courses.

The class then writes down its curriculum and decides which school(s) or school system to approach with the curriculum to have it taught. The class can

- Approach the school committee, superintendent of schools, principal, driver education department head, or curriculum coordinator
- Present the option of having the driver education teacher teach the unit or offer to teach it themselves

If and when the unit has been accepted for implementation, students can ask permission to sit in one or more classes in order to observe the results of the curriculum, or to act as resources for the teacher.

Evaluation Methods:

Students in driver education courses take pre- and posttests which are evaluated by the class.

Students write and illustrate a handbook for younger children, to be used in teaching children bicycle safety rules.

ACTIVITY #38

Mini-unit Topic: Engaging in Bicycle Projects

Approximate Class Time: 4-5 periods, plus out-of-class time

Capsule Activity Description: Students design and administer two polls: one to determine the public's attitudes toward and knowledge of bicycle safety; the other to learn the attitudes of automobile drivers toward bicyclists.

Goal:

To be aware of the attitudes of various residents in the local community toward bicycle safety.

Concepts Treated:

- Community residents' attitudes toward bicycle safety and regulations may be affected by such things as bicycle ownership, age, and sex.
- Lack of knowledge about bicycle safety rules on the part of the automobile-driving public may lead to unsafe driving practices.
- Many automobile drivers do not understand the rules of bike riding or ways of dealing with bicycle riders while on the road.
- Many automobile drivers see bicyclists as potential hazards on the road and feel that it is the bicycle rider's responsibility to avoid accidents.

ACTIVITY

One half of the class draws up a poll to discover the community's attitudes toward and knowledge of bicycle safety rules and practices. The group solicits questions from classmates. Sample questions include

- What side of the road should bicycle riders ride on?
- Must or should they stop at stop signs?

- Is it dangerous to ride on the handlebars of a rider's bike? Is it illegal?

- Is it safe to ride at night with a reflector? Is it legal to ride without a light at night?

- Is it necessary to ride a bicycle defensively?

- Is it unsafe to ride in and out of traffic even when it is not moving?

The group decides what relationships it wishes to study, such as age, sex, whether respondent rides a bike and how often. Students decide to whom to administer poll and how. The group then tests the poll by administering it to the class and makes any necessary revisions.

After administering the questionnaire to members of the community, students tabulate the results and analyze the various relationships involved. The group prepares a report that evaluates the public's attitudes and information and presents it to the class, responding to comments and questions from you and the other half of the class.

The other half of the class, while the first half is conducting its study of public attitudes toward bicycle safety, draws up a list of questions to ask automobile drivers about bicycling. The group solicits additional questions from classmates and gives the poll a dry run by administering it to friends or parents. Sample questions include

1. Have you experienced any problems driving when there are bicycles on the road?

2. What exactly have these problems been? For example, not seeing cyclists during the daytime? during the evening? having to slow down for bicycles? having to pull out of your lane to pass a bicycle? cyclists riding tandem? cyclists darting out at intersections, from between parked cars, or at intersections? cyclists riding on the wrong side of the road? cyclists weaving in and out of traffic? cyclists doing something unexpected, or seeming as if they were about to?

3. How do you feel these problems should be solved? For example, keep cyclists off the road? build more bike paths? arrest cyclists who are driving illegally? scare cyclists by riding close to them or honking at them?

4. Do you feel bicycles should (or do) have equal rights with cars on the roads? Why or why not?

The students decide whom to interview (for example, classmates, teachers, friends, community residents). They also decide if they want to make correlations, such as whether respondents ride bicycles themselves sometimes or have children who do; other correlations might involve age, sex, or type of car driven. The group then divides up responsibility for completing the interviews.

After completing the interviews, the group collates the results and makes whatever correlations have been decided upon. Findings are analyzed in terms of how to educate auto drivers to be more careful around bicycle riders and how bicycle riders should drive defensively to avoid accidents with automobiles. The group then prepares a report and presents it to the class, responding to comments and questions from you and the other half of the class.

Evaluation Methods:

Students role-play or write the dialogue to a scenario in which a reporter interviews a typical community resident about bicycle safety.

Students write an editorial for a newspaper, evaluating whether the state should enact stronger bicycle laws or enforce existing laws more strictly, based on the implications of poll results.

Students respond to your written or oral questions on how cyclists should ride in order to avoid accidents with automobiles.

Variations and Supplementary Activities:

The groups can write up their results into an article for submission to school and community newspapers.

Follow-up discussions can be held on what can be done about adults' ignorance and inappropriate attitudes, if such exist.

ACTIVITY #39

Mini-unit Topic: Engaging in Bicycle Projects

Approximate Class Time: ½-1 period, plus out-of-class time

Capsule Activity Description: Students form a committee to act as an ombudsman for bicycle-related complaints, mediating between cyclists and merchants and repairpeople.

Goal:

To learn under what circumstances redress of bicycle-related grievances is justified and under what circumstances the person seeking redress is likely to be successful.

Concepts Treated:

- In some cases, the cyclist-customer may in fact be wrong, seeking redress of an unjust grievance.
- When making a complaint to a bicycle merchant or repairperson, it is important to have all necessary papers (warranties, proof of purchase, etc.) on hand and to have organized all of the aspects of the complaint in one's mind *before* approaching the merchant or repairperson.
- In most cases, when presented with a well documented complaint, merchants will cooperate with the person making the complaint.

ACTIVITY

The students form a committee to act as an ombudsman for bicycle-related problems, mediating between cyclists who come to them with complaints about purchases or repair work and salespeople/repairpeople who made the sales or repairs.

Once the committee has been formed, the group advertises its availability to classmates, the school, and the community by word-of-mouth, newspaper notices, class presentations, or radio spot announcements.

The group also explains its objectives and reasons for organizing to the appropriate local merchants, making it clear that it is not a vigilante committee, but rather a mediating group.

For each complaint, the committee

- Questions the consumer to obtain all relevant information, such as dates (of purchase, or problem occurrence), warranties, prior experience with the merchant, and nature of the complaint
- Informs the consumer that the committee does not guarantee any results, nor does it necessarily have to agree with the consumer's position
- Decides how it will handle the case--what redress it should seek, how it should go about seeking redress, and whether the committee should act as a group, with or without the consumer, or designate one of its members to take the agreed-upon action
- Reports the results of each procedure to the class for evaluation and questions

Evaluation Method:

Students write a short brochure on common consumer mistakes (e.g., not reading warranty fully prior to purchase, not keeping receipts), how to deal with merchants and repairpeople, and the steps consumers should take in making a bicycle-related complaint.

Variation and Supplementary Activity:

Students can ask a member of the District Attorney's office to act as an advisor to the committee.

ACTIVITY #40

Mini-unit Topic: Engaging in Bicycle Projects

Approximate Class Time: ½-6½ periods, plus out-of-class time

Capsule Activity Description: Students research the history and use of the bicycle in the United States and other countries and study bicycle laws and transportation-related issues.

Goal:

To learn about how bicycles are and should be used, to determine how bicycle use may vary from one country to another and from one country to another and from one historical period to another, and to decide whether these variations have any implications for future bicycle- and general transportation-related planning.

Concept Treated:

- For certain reasons, bicycle usage and laws vary from one place to another and from one time to another; these variations are both interesting in themselves and meaningful in terms of setting bicycle laws and planning for bicycles and other forms of transportation.

ACTIVITY

The following activity is divided into five options; students in the class may divide up into small groups, and the groups may carry out various options simultaneously. Since some options will take more time than others, you may want to assign two short activity options to one group, while others take a single activity option.

Option 1 (2½-3½ periods, plus out-of-class time). A small group of students researches bicycles and bicyclists in one or more historical periods or foreign countries. Sample topics include invention of the bicycle; different bicycle shapes; bicycle speed and endurance records; introduction of the bicycle in the United States at the turn of the century; attitudes towards women cyclists in the 1890s; bicycles in wars; the history of bicycle racing; and commuting by bicycle in countries such as Holland and Norway. The group draws up a list of questions to which it is seeking answers and solicits additional questions from classmates. Sample questions include

- Why did people's attitudes toward bicycles change?
- Why do different countries use bicycles for different purposes?
- Do people in foreign countries, or those in earlier periods in American history, use bicycles in ways contemporary Americans should adopt? Why?
- Why have people in different historical periods put bicycles to different uses?
- What motivated manufacturers, designers, and users to refine the bicycle and make it more useful?
- What changes have been made to bicycles over the years?

The group divides up responsibility for the research. Research methods can include

- Examination of the countries' or periods' art work and literature
- Secondary written sources
- Interviews with history teachers and professors or bicycle club directors
- Interviews with or telephone calls to foreign embassies, consulates, and legations
- Interviews with people who have lived or traveled in foreign countries, or people who are old enough to remember earlier periods in American history

Upon completing the research, the group prepares an analytical report and presents it to the class, responding to questions from you and the other students.

Option 2 (½ period, plus out-of-class time). Students can research the history of bicycles and their contemporary use. Such a discussion can consider

- Development of the bike: Consider the forerunners and ancestors of the bicycle; bicycle development in the early 1800s; appearance of the first real bicycle in the 1840s; first mass production of bikes in the 1860s; replacement of iron and wood wheels by rubber tires in 1868; introduction of the rear chain drive in 1869; the heyday of high wheelers in the 1870s and 1880s; and the coming of age of the bicycle, the "Golden Age" of biking, and the introduction of the safety bike in the 1890s.
- Early attitudes towards bikes: They were considered sinful, like drinking and gambling, and dangerous for riders and pedestrians; women shouldn't ride them because they revealed the ankles (this attitude changed with the introduction of bloomers in the 1890s).

- Early uses of bikes: These included recreation and warfare (the Boer War, World War II).

- Contemporary bicycles: Consider the types--touring models (English racers), middleweight, high rise, folding bike, tandem, unicycle, tricycle; uses--recreation, health, exercise, commuting, sports; and numbers--80 million, more sold every year in the United States than cars, and sales are increasing every year.

Other issues that may be researched include

- Which historical period students would not like to bicycle in, and why

- How and why early bicycle customs have changed

- Elements of continuity in bicycling and models (e.g., different bikes for men and women)

- What facilities existed for bicyclists in earlier historical periods

- How safe earlier bikes were and whether bikes have become safer or more dangerous to ride

Option 3 (½-1 period). In a class discussion, relate the study of bicycles to other important transportation consumer issues, indicating that purchase and use of bicycles involves people automatically in the effects of other modes of transportation, such as

- Urban transportation problems

- Transportation planning

- Transportation and the environment (e.g., pollution and energy shortages)

Point out, for example, that because the bicycle is becoming more competitive with other modes of urban travel (e.g., the automobile, mass transit), it offers a potential solution to some of the pressing urban transportation problems created by these modes.* These include automobile congestion in the inner city, commuter traffic problems, and parking. The viability of the bicycle for short urban trips (one to five miles) has been demonstrated in races between commuters traveling by bus, automobile, and bicycle. In each case, the cyclist reached the destination first and at a lower operating and maintenance cost.

As the bicycle becomes a major factor in transportation, it must also become an element in transportation planning. If current planning does not consider bicycles seriously, the viability of bicycles may be limited. General transportation planning, in considering the bicycle, may lead to new developments in bicycle facilities (e.g., bikeways and parking lots) and to provisions for mixed-mode travel (e.g., commuters may ride bicycles to transit stations, park their bikes, and then ride mass transit to work). The future design of bicycle facilities, transit vehicles, and personal vehicles could be influenced by the nature and extent of bicycle travel.

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*The following discussion is taken from "A Look at Cycling and Energy Efficiency," Richard A. Rice and Jeffrey L. Thompson, Carnegie-Mellon University, May 1973, p. 13.

A number of environmental and resource issues are also related to bicycle use, including the fuel crisis. In urban areas, it is estimated that most private automobiles using petroleum-burning engines make about 1000 round trips under five miles per year. This involves about 300 gallons of gasoline per year per household. If bicycles were substituted for two-thirds of these trips, the saving per household would be 270 gallons of gasoline annually. This could obviously help ease the nationwide fuel shortage. Another environmental problem that is addressed by the increased use of bicycles is air pollution due to automobile exhaust. Reduction in the number of automobiles operating in urban areas would contribute to improved air quality. Pollution is also a more personal issue for cyclists, since they are exposed to large amounts of pollutants when they share the roadway with automobiles.

You and the students can explore additional relationships among bicycling and other transportation consumer issues. The important point is to realize that many such relationships exist and that bicycle use is not an isolated event unrelated to the total transportation picture.

Option 4 (4-6½ periods, plus out-of-class time). A small group of students researches and evaluates Federal, state, and local bicycle laws. Before engaging in the project, the group polls the class or other students and community residents regarding what they think bicycle laws and penalties *should* be and comes to its own conclusions as a group as to what the laws and penalties should be. The group then draws up a list of questions it wants its research to answer, and solicits other questions from the class. Sample questions include

- What are the bicycle-related laws in the state or municipality?
- What are the penalties for violating these laws?
- Why were the laws originally passed?
- To what extent are they obeyed?
- To what extent are they enforced?

The group decides how it will conduct the research and divides up the tasks. Research methods can include reading relevant literature; interviewing (in person or by telephone) police officers, legislators, Department of Motor Vehicles personnel, officers of bicycle clubs, and other local groups and individuals who have responsibility for bicycle legislation; and observing violations of laws and enforcement practices.

After conducting the research, the group evaluates its results in terms of such questions as

- Would stricter laws or stricter enforcement of existing laws help to reduce bicycle accidents? Why?

- If cyclists are not obeying the laws, why not? If they should be encouraged to do so, how can this be accomplished?

- Are the bicycle laws useful? Why or why not?

- How do existing laws and penalties compare with the laws the group and class said should be in force? If there are differences, what might explain them? Who is "right"?

The group then prepares and presents a report to the class on its findings and evaluations and responds to comments and questions from you and the other students.

Option 5 (2½-3½ periods, plus out-of-class time). A small group of students researches safety laws and riding habits in foreign countries and compares them with those of the United States. First the students pick the countries they wish to research, such as France, Holland, Norway, Russia, or Japan. The group then decides what research techniques it wishes to use, such as a review of literature; personal or telephone interviews with foreign embassy officials or personnel in consulates and legations in the United States; or interviews with people who have lived or traveled in the countries being studied. The types of issues which the students should consider include

- What are the laws regarding bicycle use and safety in these countries?

- Are they obeyed? Why or why not?

- Do people use bicycles for different purposes than they do in the United States? If so, why?

- Who uses them most? Adults? Children? Women? The elderly?

After conducting the research, the group prepares and presents a report to the class and responds to comments and questions from you and the other students.

Evaluation Methods:

Students pick one historical period or country and write an autobiography of a typical citizen, describing how he or she feels about bicycles and how he or she uses a bicycle.

Half of the class writes a defense, and the other half an attack, on one or more bicycle laws. Students exchange papers and write critiques of each other's papers.

Students write a brochure for bicycle riders concerning how and why they should be aware of the relationships among bicycles and other transportation consumer issues.

Variation and Supplementary Activity:

Each small group writes up its findings as an article for submission to school and community newspapers.

ASSESSMENT ACTIVITIES

The four activities that follow are designed for use as evaluation tools before and after you use one or more of the preceding mini-units or activities.

The first activity enables you to assess, before using one or more units, what topics and issues related to bicycles and bicycling your students are interested in studying. The information you glean from the activity will help guide your selection of mini-units and activities to use.

The second activity is a course assessment exercise that will enable you to learn what your students liked and didn't like about the mini-units or activities you have used.

The third activity contains questions designed to reveal student attitudes toward various issues related to bicycles.

The final activity consists of a series of essay, multiple-choice and true-false questions you can ask your students in order to evaluate how much they learned from the mini-units or activities you implemented. You can also administer the questions before you teach about transportation and the environment as well as afterward and compare results. In any case, use only those questions that treat topics your students will be studying or have studied.

ASSESSMENT ACTIVITIES

Activity #	*Activities*	*Class Time*
41	DESCRIPTION: You and the students evaluate class concerns about attitudes toward bicycles.	½ period
42	DESCRIPTION: Students evaluate the course.	½-1 period
43	DESCRIPTION: You and the students evalute student attitudes toward various subjects covered in the course, including bicycle purchase, bicycle maintenance, redress of grievances, and bicycle safety.	½-1 period
44	DESCRIPTION: Students respond to written or oral questions on topics covered in the course.	½-1 period

ACTIVITY #41

Assessment Activity — Approximate Class Time: ½ period

Capsule Activity Description: You and the students evaluate class concerns about attitudes toward bicycles.

ACTIVITY

Students answer questions designed to reveal their concerns about bicycles and bike riding. Sample questions appear on the following page.

The attitude test should be answered anonymously to allow students to feel free to express their real feelings. Students should be told in advance that there are no right or wrong answers.

Variation and Supplementary Activity:

Students create their own questions, either individually or in small groups, and other students answer them.

ATTITUDE QUESTIONNAIRE

Do you have problems with any of the following bicycle situations?

	No Problems	*Some Problems*	*Many Problems*
Buying a bicycle			
Selling a bicycle			
Repairing a bicycle yourself			
Having a bicycle repaired			
Performing routine maintenance on a bicycle			
Deciding what kind of bike to buy			
Seeking redress of grievances when a bike hasn't been repaired properly or if you feel you were overcharged			
Riding in traffic			
Riding at night			
Riding safely			
Not having bike paths on which to ride			
Not having someplace safe to park a bike when you ride somewhere			
Not knowing how to get the town to construct bike paths			
Not knowing how to use a bike except for fun			
Not knowing what accessories to buy for a bike			
Not knowing how to keep a bike from being stolen			
Not knowing how much money to spend on a bike			
Not knowing which side of the road to ride on			
Not knowing whether to buy a one-, three-, five-, or ten-speed bike			
Not knowing local bicycle registration requirements			

The best way to handle these situations or solve these problems is (check all that apply)

None of them can be solved ______

By getting honest politicians ______

By getting honest salespeople, repairpeople, businesspeople, etc. ______

By educating the public to be wise purchasers and users ______

By passing laws to correct abuses ______

By letting everyone solve his own problems ______

Other (specify)

____

____

____

____

____

____

A course on bicycles could help me most if it

Dealt with the following specific bicycle topics (specify)

____

____

____

____

____

____

Let me study what I want, but assisted me to do so effectively by (specify)

____

____

____

____

Used (check all that apply)

Art ______

Audiovisuals ______

Debates ______

Discussions:

- Small group ______
- Class ______

Drama

- Role plays ______
- Games ______

Field trips ______

Independent study ______

Interviews ______

Lectures ______

Polls ______

Reading ______

Research ______

Peer teachers ______

Volunteer work ______

Writing ______

Is there anything else you would like to see used? ______________________

____

____

ACTIVITY #42

Assessment Activity **Approximate Class Time:** ½-1 period

Capsule Activity Description: Students evaluate the course.

ACTIVITY

Students write responses to questions designed to reveal to you and them whether the course objectives were achieved and, if they were not, how they can be in the future. Sample questions appear on the following pages.

After answering the questions, the class can break up into small groups or discuss as a class the value of the course and how to improve it, based on the students' written responses.

Variation and Supplementary Activity:

Students can participate in writing questions for the class to answer.

COURSE EVALUATION QUESTIONS FOR STUDENTS

What did you gain from this course? Check as many or few of the following as apply:

______ Only a review of well known facts

______ A few new useful facts

______ Much new useful information

______ Better understanding of (fill in the topics covered)

______ Desire to go more deeply into study of (fill in the topics covered)

______ Some new and important attitudes toward (fill in the topics covered)

______ Change in my personal use of bicycles or my reactions to other people's use of bicycles

______ Other

From which part of the study do you feel you learned well?

______ Preparation of homework assignment

______ Individual reading

______ Oral reports

______ Written reports

______ Lectures

______ Role plays

______ Games

______ Individual projects

______ Guest speakers

______ Debates

______ Small group discussions

______ Class discussions

______ Field trips

______ Audiovisual aids

______ Other activities (list)

What is your opinion concerning the amount of time spent in this study?

______ Too much ______ Too little ______ About right

From which books and pamphlets did you learn the most?

From which games did you learn the most?

From which role plays did you learn the most?

What questions or topics had you hoped would be included in the study that were not?

What suggestions do you have for improving the course?

Do you feel that materials covered in this class were unnecessarily repetitive of those covered in another class or classes? If so, what materials do you feel were repetitive?

What do you think are the greatest needs in bicycle education?

After having considered very carefully what you have learned during this course, have you changed your mind or made a choice concerning your personal use of bicycles? If so, what?

ACTIVITY #43

Assessment Activity **Approximate Class Time:** ½-1 period

Capsule Activity Description: You and the students evaluate student attitudes toward various subjects covered in the course, including bicycle purchase, bicycle maintenance, redress of grievances, and bicycle safety.

ACTIVITY

Students answer questions designed to diagnose their attitudes on four subjects:

- Bicycle maintenance and repair
- Bicycle facilities and organizations
- Redress of grievances concerning bicycle purchase, etc.
- Bicycle safety

Attitude tests should be answered anonymously so that students will feel free to express their real feelings.

Answers may reflect ignorance, indifference, reasoned thought, traumatic personal experiences, or other factors. There are no right or wrong answers.

Variation and Supplementary Activity:

Students can create their own attitude questions, either individually or in small groups, and other students can answer them.

The following are sample questions to evaluate students' attitudes toward maintaining and repairing a bicycle. Students check the appropriate column that indicates most accurately their feelings about the question.

	Agree Strongly	*Agree*	*No Opinion*	*Disagree*	*Disagree Strongly*
Most bicycle mechanics are dishonest.					
There's no way you can stop a bicycle mechanic from cheating you.					
If you try to make major repairs on your bike by yourself, you'll probably mess things up.					
There are a few important maintenance tasks any bike owner can do.					
Maintaining a bike properly makes it less likely you'll have troubles with it later on.					
There's really nothing useful the average bike owner can do to keep his bike in good condition.					
There's no way of keeping one's bike from being stolen.					
Using the right kind of lock can do a lot to keep your bike from getting stolen.					
When you buy a new bike, you just have to take a chance on getting a lemon.					
When you get a bike repaired and the repair shop does a lousy job, there's really nothing you can do about it.					

The following are sample questions to evaluate students' attitudes toward community bicycle facilities and organizations. Students check the appropriate column that indicates most accurately their feelings about the question.

	Agree Strongly	*Agree*	*No Opinion*	*Disagree*	*Disagree Strongly*
Bikes are good for some people for going to work and home.					
People who ride bikes to work and home are weird.					
Having special paths by the side of roads would be a good thing for bike riders.					
It would be nice if there were more safe places for bike riders to park their bikes.					
Bike paths by the side of the road would be nice but they're not worth spending money on.					
Our community doesn't need any bike paths.					
Our community doesn't need any special places to park bikes.					
There's no way we can persuade the government or town to build us bike paths.					
If we really tried, we probably could get the town to build some bike paths.					
The best way to get the town to build bike paths is to write letters and meet with the town officials.					
The best way to get the town to build bike paths is to hold some demonstrations.					

The following are sample questions to evaluate students' attitudes toward redress of grievances. Students check the appropriate column that indicates most accurately their feelings about the question.

	Agree Strongly	*Agree*	*No Opinion*	*Disagree*	*Disagree Strongly*
There's nothing you can do about a repairman who cheats you.					
If you buy a bicycle that has something wrong with it, there are things you can do to make the bike shop fix it for nothing.					
A good way to get action when you feel a merchant has done something unfair is to complain to his boss.					
It is sometimes useful to picket a merchant's shop or home if you feel he has cheated or been unfair to you.					
It's a waste of time and effort trying to get a salesperson to repair something he sold you that's defective.					
A repairman who fixes something for you that still doesn't work should have to fix it again for nothing.					

The following are sample questions for evaluating students' attitudes toward bicycle safety. Students check the appropriate column that indicates most accurately their feelings about the question.

	Agree Strongly	*Agree*	*No Opinion*	*Disagree*	*Disagree Strongly*
There's not much danger in riding a bike in traffic.					
Most bike accidents take place because the rider wasn't careful.					
Most bike accidents take place because some automobile driver didn't look where he was going.					
There's not much a bike rider can do to make riding safer. It's out of his control.					
Bike riders should ride down the street facing the traffic so they can see what's coming before it's too late.					
Keeping your bike in good condition helps to make riding safer.					
Most of our bicycle laws are sensible					
Most bike riders don't know what the bike laws are.					
Most bike riders don't obey the bicycle laws.					
Pedestrians should watch out for bicycles and get out of their way.					
Bicycling is healthy.					

ACTIVITY #44

Assessment Activity Approximate Class Time: ½-1 period

Capsule Activity Description: Students respond to written or oral questions on topics covered in the course.

ACTIVITY

Students answer written or oral questions on five topics:

- Bicycle purchase
- Bicycle maintenance and repair
- Bicycle facilities and organizations
- Redress of grievances concerning bicycle purchase, etc.
- Bicycle safety

Sample questions appear on the following pages.

Variation and Supplementary Activity:

Students can develop their own questions, individually or in groups, and other students can answer them.

The following are sample questions on bicycle purchase. Correct answers to multiple-choice questions are in italics.

Essay Questions

1. What considerations does a bicycle buyer need to take into account in deciding what kind of bike he should buy?

2. Of the considerations a bicycle buyer should take into account in buying a bicycle, which involve safety, which convenience, which cost, and which luxury?

3. When a bicycle purchaser walks into a store ready to buy a bicycle, what steps should he go through before he agrees to purchase one? Why are these steps important?

4. After buying a bicycle, what accessories can the purchaser consider buying? Which accessories may be needed or desired for reasons of safety, convenience, and luxury?

5. In buying a used bicycle, what should the purchaser examine to make sure the bike is in reasonably good condition?

6. What three steps should a buyer take in determining from which store to purchase a bicycle?

Multiple-Choice Questions

1. The first step in buying a bike is

    (a) Visiting a bike shop to find out bicycle prices
    (b) Asking friends how satisfied they are with the bikes they've bought
    (c) Selecting a good bicycle store
    (d) Deciding how you intend to use the bicycle

2. Which of the following items is *not* important to consider when deciding what kind of bike to buy?

    (a) Deciding how many gears you want
    (b) Checking the frame for defects
    (c) Selecting a price range
    (d) Choosing the style of bike (racing, etc.)
    (e) None of above

3. When buying bikes for younger children, which of the following safety and cost considerations should a buyer *not* be concerned about?

   (a) How long the child will be able to use the bike before he or she outgrows it
   (b) Selecting a bike sturdy enough to take kids' rough use
   (c) Buying a modern, banana seat, high handlebar bike that the child won't be ashamed of
   (d) Selecting the right frame size

4. When a buyer has decided what kind of bicycle to buy and is in the store deciding whether to buy it, he should do which of the following?

   (a) Examine the warranty
   (b) Select the right bicycle size
   (c) Test ride the bicycle
   (d) (b) and (c)
   (e) All of the above

5. It is useful to examine the tires on a bicycle one is buying for many reasons. Which of the following is *not* an important reason for examining them?

   (a) They may be in bad condition.
   (b) They may be sew-ups--tires that puncture easily.
   (c) They may not have enough air in them.
   (d) (b) and (c).

6. In deciding how many speeds or gears to have on the bike you buy, it is important to consider

   (a) Whether you will be riding up hills
   (b) How roughly you will be treating the bike
   (c) Whether the extra gears are worth the extra money to you
   (d) All of the above

7. You can buy a good new bicycle--one that will last many years and will not fall apart--for

   (a) $25 - $40
   (b) $75 - $125
   (c) $125 - $200
   (d) All of the above
   (e) (b) and (c)

8. The most important reason for buying accessories for a bike is

   (a) Safety
   (b) Fun
   (c) Comfortable ride
   (d) Good looks
   (e) All of the above (all equally important)

9. All of the following accessories should be considered because they contribute to safe riding except for

   (a) Lights
   (b) Reflectors
   (c) Locks
   (d) Trouser-cuff clips

The following are sample questions on bicycle maintenance and repair. Correct answers to multiple-choice questions are in italics.

Essay Questions

1. What simple maintenance tasks can the ordinary bicycle owner perform on his bicycle? *(Lubrication, tire care, tightening bolts, adjusting brakes, keeping bicycle dry)*

2. Why is it important that bike owners take regular care of their bike? *(safety, riding ease, lengthening life of the bike, avoiding breakdowns on the road)*

Multiple-Choice Questions

1. It is important to maintain proper tire pressure for many reasons. Which of the following is *not* a good reason for maintaining proper tire pressure?

   (a) incorrect tire pressure makes tires more likely to get cut by glass.
   (b) Proper tire pressure makes for easier riding.
   (c) Too little air can result in damage to tire rims.
   (d) Too much air in tires can result in their bursting.

2. The best way to fill tires is to

   (a) Set a gas station pump at the proper setting and then fill the tires until the chimes stop.
   (b) Use a hand pump and keep feeling the tires until they seem firm.
   (c) Ask a gas station attendant to fill them for you.
   (d) Use a hand pump or gas station pump and check the tire pressure constantly with a hand gauge.

3. Bicycles need lubrication or oiling on all of the following parts except

   (a) Spokes
   (b) Derailleur
   (c) Chain
   (d) Pedal

4. Major oiling points should be lubricated approximately

(a) Once a year
(b) Twice a year
(c) Once a month
(d) Twice a week

5. The best way to find out what parts on a bike need oiling is to

(a) Look on the bike for oil holes
(b) Ask a friend who owns the same kind of bike what parts to oil
(c) Wait until a part squeaks and then oil it.
(d) Read the owner's manual

6. After riding a bike in the rain

(a) Wipe it dry with a dry cloth.
(b) Wipe it with a damp cloth.
(c) Wipe with a mixture of five parts water to one part ammonia.
(d) Let it dry in the sun.
(e) You don't have to do anything; bikes don't rust.

7. Bike owners can't perform any important maintenance tasks on their bikes because

(a) They have no way of knowing what they should do.
(b) They are liable to do the wrong thing and damage the bike.
(c) Bikes don't need regular maintenance.
(d) It's better to let bike shops do all maintenance tasks--they know what they're doing.
(e) None of the above.

8. Performing regular maintenance on one's bike is important because of which of the following reasons?

(a) Bike riding will be safer.
(b) Bike riding will be easier.
(c) Bikes will last longer.
(d) Bike breakdowns will be limited.
(e) (b), (c), and (d).
(f) All of the above.

9. If bike owners want to make their own repairs on their bikes they should do which of the following things?

(a) Buy and carefully read a good book on bicycle repair
(b) Buy good tools for making repairs
(c) Use a well ventilated room with lots of air
(d) Test the results of their repairs before taking a bike trip
(e) (a) and (d)
(f) All of the above

10. Which of the following are helpful in preventing bike thefts?

    (a) Riding a beat-up old bike
    (b) Using a lock
    (c) Leaving the bike within view at all times
    (d) Asking someone to keep an eye on the bike until you return
    (e) All of the above

11. The two best methods of preventing bike thefts are

    (a) Locking the bike and keeping an eye on it
    (b) Locking the bike and riding a beat up old bike
    (c) Riding a beat-up old bike and keeping an eye on it
    (d) None of the above; there's no way to help prevent bike thefts

The following are sample questions on bicycle facilities and organizations. Correct answers to multiple-choice questions are in italics.

Essay Questions

1. What are the major types of bicycle facilities?

2. What are the differences between bikeways, bike lanes, and bike paths?

3. What are the advantages and disadvantages of bikeways, bike lanes, and bike paths?

4. What kind of bicycle parking facilities would best serve bicyclists? Where should they be located? What should they consist of? Why?

5. What different kinds of purposes can bike facilities serve? Which of these purposes is the most important? Why?

6. How can a community or individual decide what bicycle facilities are needed?

7. How can a community, group of individuals, or single person go about obtaining needed or desired bicycle facilities? Discuss this problem in general. Then take a specific bicycle facility you feel your community needs and discuss what the most effective method(s) are for obtaining that facility.

8. Are bike-ins, rallies, or other demonstrations ethical ways of exerting pressure to obtain bicycle facilities? Why or why not? If only sometimes, when?

9. What are the major recreational activities bicyclists can form clubs to promote?

10. What are the two major types of touring? What are the advantages and disadvantages of each? What equipment is needed for each?

11. What are some of the different types of bicycle races cyclists can engage in?

12. What are some of the games cyclists can play? What equipment is needed for each? How safe are they? How can any safety hazards be eliminated or minimized?

13. What were some of the early attitudes toward bicycles? Why have they changed?

Multiple-Choice Questions

1. A bikeway is best defined as

   (a) A bike lane with white lanes
   (b) A regular street that bikes can also use
   (c) A separate path just for bicycles
   (d) A way of biking that keeps the wind behind you

2. Bicycle riding is safest when done on

   (a) Bikeways
   (b) Bike lanes
   (c) Bike paths
   (d) Regular streets

3. Parking facilities for bicycles should be all of the following except

   (a) Expensive
   (b) Well lighted
   (c) Convenient
   (d) Metal

4. Bicycle facilities are useful for many reasons. In the following list, which statement does *not* explain the value of bicycle facilities?

   (a) They make riding safer.
   (b) They are less expensive than roads.
   (c) They make riding more convenient.
   (d) They make it harder to steal bikes.

5. There are two major types of bicycle touring:

   (a) Speed touring and easy-going touring
   (b) Cross-country touring and back-yard touring
   (c) Tricycle touring and unicycle touring
   (d) Camping touring and tourist touring

6. In organizing bicycle games, cyclists should consider all of the following except

   (a) Safety
   (b) Clothing
   (c) Condition of bicycle
   (d) Hubcaps

The following are sample questions on redress of bicycle grievances.

1. What three issues must be addressed by someone who is considering seeking redress of a grievance?

2. Assume that you had your bicycle brakes repaired, but they still don't work when you get home.

   (a) Would you do anything about this?
   (b) If not, why not? If so, what would you do?
   (c) Why would you choose that particular course of action in seeking redress of your grievance?

3. Discuss any three methods of redress of grievance in terms of

   (a) The conditions (grievances) that would cause you to use them
   (b) Whether you think they would be effective and why
   (c) Whether you feel that you have the ethical right to use them

The following are questions on bicycle safety. Correct answers to multiple-choice questions are in italics.

Essay Questions

1. If you had a son or daughter ____ years old (stipulate age), what restrictions, if any, would you set on his or her bicycle behavior, and why?

2. What would you do if you found your son or daughter who is ______ years old (stipulate age)

   (a) Riding on the wrong side of the road
   (b) Riding on the handlebars of a friend's bike
   (c) Riding a friend on the handlebars of his or her (son's or daughter's) bike
   (d) Jumping the front wheel off the ground
   (e) Riding on a heavily traveled street

3. What are the best methods for coping with pressures from friends to bike unsafely?

4. Why do people exert pressure on others to bike unsafely?

5. Have you actually used anything that you learned in this course in your private life? Did you, for example, make any decisions that were influenced in any way by something you learned in the course? If so, what? If not, why do you think you have not?

Multiple-Choice Questions

1. Bicycle accidents are

   (a) Rare
   (b) Common but not serious
   (c) Common and often serious
   (d) An unknown: no one knows how common or serious they are

2. Bicycle riders are killed

   (a) Never--but there are a lot of injuries
   (b) Rarely--a few dozen a year
   (c) Occasionally--around 50 a year
   (d) Quite often--about three every day

3. Riding against the traffic is a good idea because

   (a) You can see the traffic before it gets to you.
   (b) Cars can see you before they get too close.
   (c) Cars and bikes get a better view of each other on curves.
   (d) All of the above.
   (e) None of the above.

4. Riding with the traffic is a good idea because

   (a) Cars do not look for traffic coming down the wrong side of a street.
   (b) If a cyclist crashes into a car, their combined speed is worse than if they were going in the same direction.
   (c) It helps prevent running into cars who hug the inner side of the road on curves.
   (d) All of the above.
   (e) None of the above.

5. Speeding can be dangerous for which of the following reasons? *(Check all that are correct.)*

   (a) High winds created by going too fast will knock you over.
   (b) Your hair will fly in your face and prevent you from seeing where you're going.
   (c) It will be more difficult for you to avoid potholes and glass.
   (d) Dogs are more likely to chase and bite you.
   (e) It will be harder to stop suddenly for traffic or pedestrians.

6. When riding at night, as opposed to daytime, it is especially important to

   (a) Wear light-colored clothing
   (b) Carry front and rear lights
   (c) Ride into the traffic
   (d) Ride with the traffic
   (e) Ride more slowly
   (f) (a), (b), and (c)
   (g) (a), (b), (d), and (e)
   (h) (a), (b), and (e)

7. The best way to handle a dog who attacks a cyclist is to

   (a) Yell at him
   (b) Ignore him
   (c) Kick him
   (d) Reach down and pat him
   (e) Try to run him over

8. Which of the following is an unsafe bicycle habit?

   (a) Riding with the traffic
   (b) Riding two abreast on the road
   (c) Stopping for every stop sign
   (d) Slowing down for blinking yellow lights
   (e) None of the above are unsafe

9. Which of the following "safety" ideas is actually dangerous?

   (a) Looking out for doors opening on parked cars
   (b) Watching out for drains in the road
   (c) Listening for cars coming behind you
   (d) Riding in the middle of the street to avoid glass
   (e) All are dangerous

10. It may be important to register your bike for safety reasons because

   (a) If it's lost or stolen, you stand a better chance of getting it back.
   (b) If you are injured, police or doctors will have an easier time contacting your relatives.
   (c) If you break the law, police can identify who you are.
   (d) It's required by law.

BIBLIOGRAPHY

BIBLIOGRAPHY

The bibliography section contains teaching materials for teachers and students. It consists of selected references to

- Curriculum guides
- Student materials (pamphlets, books), many of which can be read by teachers for background information
- Audiovisual materials
- Periodicals

The individual entries are presented in the following format:

** *Title of Work,* author, date of publication. Number of pages or list of materials. Price.

Type of Material Description of material with evaluation of material's quality (except for audiovisual materials and supplementary materials) and relevance for bicycle education.

Source from which material may be obtained.*

For purposes of convenience, the teacher and student materials sections have been rated by the designation of stars next to the title of the material (see sample above). The stars represent the following evaluation:

No stars:	Material is useful, but fair
(*) One star:	Material is good
(**) Two stars:	Material is very good
(***) Three stars:	Material is excellent

It should be kept in mind that these evaluations are an estimation of the material's *quality and relevance.*** As such, the absence of a teaching material or a low rating does not *per se* indicate the material is poor. It may be excellent but simply not very relevant. In addition, many books on bicycles have not been included. There are simply too many on the market to evaluate all of them. Any absences may also be due to the authors' oversight.

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*Allow ten weeks for delivery of items ordered from the U.S. Government Printing Office.

**A complete discussion of the criteria used to evaluate the materials may be found at the end of the Bibliography.

Finally, the reader should be aware that *Bicycling!* magazine has published a complete, annotated, and invaluable bibliography of all bicycle literature, organizations, and legislation in its July and September 1972 issues. In addition, an annual supplement to that original list is promised each year. Audiovisual materials are not included.

At the end of the Bibliography is a list of government agencies that can be contacted for further information about bicycles.

CURRICULUM GUIDES

National Safety Council Catalogue, 1977-1978. 85 pages. Free.

Catalogue

Comprehensive catalogue on all aspects of safety, including bicycles. Included are listings of booklets, manuals, films and filmstrips, and posters.

National Safety Council
425 North Michigan Avenue
Chicago, IL 60611

* *Guide for Leaders: 4-H Bicycle Program,* 1971. 19 pages. Free.

Guide

Detailed suggestions for 4-H leaders, but equally useful for teachers, on how to teach a unit on bicycles. Guide includes list of study topics, suggested "meeting plans" (activities using bicycles, outdoors for the most part); suggested riding activities (e.g., balancing, signaling, entering highway); favorite bike games and races; and a bicycle inspection form and quiz. Guide is primarily designed for use outdoors with each student having his or her own bicycle.

U.S. Department of Agriculture
Extension Service
Washington, DC 20250

Bicycling: A Bicycle Safety Instruction Guide for Teachers, 1966. 23 pages. Free in Pennsylvania.

Booklet

Curriculum outline for teachers providing factual outlines on accidents, selection, care, and maintenance, riding skills, and traffic regulations. No classroom activities provided.

Commonwealth of Pennsylvania
Department of Public Instruction
Harrisburg, PA

** *Teacher's Guide to Bicycle Safety Activities and Projects* (not dated). 12 pages.

Pamphlet Series of creative activities, many spelled out in detail, on bicycle safety. Illustrated. See *Bicycle Safety Program Aids*, below.

American Automobile Association
Traffic Engineering and Safety Department
1712 G Street, N.W.
Washington, DC 20006
Stock No. 3218

Bicycle Safety Curriculum Guide (not dated). 27 pages. Free.

Guide Includes expected outcomes and teacher suggestions for classroom activities on bicycle purchase, traffic rules, safe driving, night driving, and maintenance. Activities are few and not detailed. Bicycle safety checklists and purchase considerations checklist are very useful.

The University of the State of New York
The State Education Department
Division of General Education
Albany, NY 12224

STUDENT MATERIALS

What Everyone Should Know About Bicycles, 1965. 15 pages.

Pamphlet Brief overview of bicycle safety. Utility is limited because of moralistic and injunctive approach. Topics include bicycle parts, history, uses, rules of the road, and care. Some students may find cartoon format condescending or childish. Part of a series of ten pamphlets on highway traffic safety.

Channing L. Bete Co., Inc.
45 Federal Street
Greenfield, MA 01301

The Bike Book (not dated). 7 pages. Free.

Flyer Illustrated brief tips to youngsters on bicycle maintenance and safety.

National Safety Council
425 North Michigan Avenue
Chicago, IL 60611

** *The Bicycle Book,* by Lillian and Godfrey Frankel, 1972. $1.50.

Paperback Useful account of how to select, repair, care for, and ride a bicycle. Bike trips, tours, clubs, and camping are also discussed. Section on bicycle games (22 pages) is especially complete and creative. Illustrated.

Cornerstone Library
Simon and Schuster
630 Fifth Avenue
New York, NY 10020

* *Bicycle Blue Book* (not dated). 14 pages. Free.

Flyer Brief instructions on how to care for a bicycle, including a checklist of items to periodically examine, clean, or replace. The section on tire care and selection recommends the use of the distributor's tires.

The Goodyear Tire & Rubber Company
Public Relations Department
Akron, OH 44316

** *Bikes,* by Stephen C. Henkel, 1972. 189 pages. $1.25.

Paperback Comprehensive, straightforward account of bike styles, purchasing a bike, learning to ride, maintenance and repair, safety, and having fun. Profusely and very well illustrated. Sections on do-it-yourself maintenance and repairs are especially good.

Bantam Books, Inc.
666 Fifth Avenue
New York, NY 10019

** *The Bicycle Book,* Bob Boethling (ed.), 1971. 63 pages. $1.50.

Paperback

Gamey and well formatted advice on a variety of bicycle topics, including buying a bicycle, bikeways, theft, recreational cycling organizations, legal problems, and maintenance. Not well illustrated.

Price/Stern/Sloan Publishers, Inc.
410 North Cienega Boulevard
Los Angeles, CA 90048

*** *The Bike Book,* by Bibs McIntyre, 1974. 262 pages. $1.25.

Paperback

Excellent discussion of how to buy and maintain and safely ride a bicycle. Unusual chapters deal informatively with how to prevent theft, how to work up to a 50-mile trip, and which accessories would you really use. Exceptionally good resources section including list of local, state, and national bicycle clubs, racing organizations and clubs, and American Youth Hostel local council offices.

Pyramid Communications, Inc.
919 Third Avenue
New York, NY 10022

** *Anybody's Bike Book,* by Tom Cuthbertson, 1971, revised, 1973. 176 pages. $3.00 plus 25¢ postage.

Paperback

Illustrated, easy to read, well organized manual of bike repairs for the amateur and serious enthusiast.

Ten Speed Press
Box 4310
Berkeley, CA 94704

** *The Clear Creek Bike Book,* 1972. 179 pages. $2.95.

Paperback

Informative, but somewhat meandering description of bicycle history, how to buy, ride, and repair a bicycle, safety issues, and racing and touring. Unusual are the two sections on the history of bicycles and health benefits from bicycling. The section on politics is an especially useful discussion of how to influence the development of bikeways and parking facilities for bikes. Excellent photographs.

The New American Library, Inc.
1301 Avenue of the Americas
New York, NY 10002

** *Richard's Bicycle Book,* by Richard Ballantine, 1972. 249 pages. $1.95.

Paperback

Profusely and well illustrated account of how to maintain and repair a touring bicycle. Discussions of how to buy and ride a bike are included.

Ballantine Books, Inc.
201 East Fiftieth Street
New York, NY 10022

** *Consumer Guide: Bicycles: Complete Buying Guide,* 1972. 384 pages. $1.50.

Paperback

Detailed evaluation of bicycles arranged by age and price based on actual road testing. Book also includes discussion of bicycle safety considerations and how to buy a bike. Interesting sections are provided on the health benefits of bike riding and detailed rules for bicycle polo. List of bicycle clubs by state is included.

Popular Library
355 Lexington Avenue
New York, NY 10017

Parents, Buying Your Child a Bicycle (not dated). 6 pages.

Flyer

Very brief instructions to parents on whether to buy their children a bicycle and, if so, what kind of bike to buy.

American Automobile Association
1712 G Street, N.W.
Washington, DC 20006

* *Bicycles: Safety Education Data Sheet Number 1* (not dated). 7 pages.

Pamphlet

Brief discussion of safety aspects of bicycles. Provides useful information but not very imaginatively. Part of a series of data sheets on safety.

National Safety Council
425 North Michigan Avenue
Chicago, IL 60611
Stock No. 429-04-1

Fact Sheet (not dated). 4-6 pages. Single copies free.

Flyer Series of flyers on various aspects of bicycles, such as bicycle usage, locations of accidents, and boy vs. girl bicycle accidents.

National Safety Council
425 North Michigan Avenue
Chicago, IL 60611

* *Helpful Hints on Bicycle Care for Safer Riding* (not dated). 4 pages.

Flyer Quick but detailed overview of how to maintain a bicycle. Many of the suggested tasks involve more work than most riders will be willing to engage in.

Bicycle Manufacturers Association
1101 Fifteenth Street, N.W.
Washington, DC 20005

* *Bike Quiz Guide; Pedal Primer; Bicycles* (not dated). 7-9 pages each. Free.

Pamphlets Three small introductory brochures on bicycle safety and maintenance.

Bicycle Manufacturers Association
1101 Fifteenth Street, N.W.
Washington, DC 20005

Model Bicycle Ordinance (not dated). 10 pages.

Flyer Standard bicycling regulations excerpted verbatim from the Uniform Vehicle Code and the Model Traffic Ordinance.

American Automobile Association
1712 G Street, N.W.
Washington, DC 20006
Stock No. 3206

* *Skill Tests for Pedal Pushers* (not dated). 6 pages. Free.

Flyer Ten detailed bicycle skill tests with scoring system for each and summary score sheet. Tests are for determining safety skill levels but may also be conducted as contests for fun.

National Safety Council
425 North Michigan Avenue
Chicago, IL 60611

* *Bicycle Safety Tests and Proficiency Course* (not dated). 23 pages. Free.

Pamphlet Series of detailed proficiency and safety tests riders can practice. A model inspection form for bike maintenance is also provided.

Bicycle Manufacturers Association
1101 Fifteenth Street, N.W.
Washington, DC 20005

* *Bicycle Safety Program Aids* (not dated). Ten pamphlets and three posters.

Packet Folder of materials on bicycle safety and use, including the *Teacher's Guide to Bike Safety,* above. Included as well are a pamphlet to parents on buying their children a bicycle, the results of an AAA survey on the nature and causes of bicycle accidents, a bicycle skill tests pamphlet (well illustrated and described), and a bicycle inspection check list.

The American Automobile Association
1712 G Street, N.W.
Washington, DC 20006
Stock Number 3289

** *North American Bicycle Atlas,* 1972. 127 pages. $2.60.

Guide Extremely useful descriptions of about 80 long rides and 61 short rides cyclists can take throughout the country. Descriptions include scenery, facilities, difficulty, and type of equipment needed. Trips are rated according to difficulty: easy, fairly easy, intermediate, hard, and rugged. Introduction discusses lodging, equipment, safety, and handling dogs

American Youth Hostels, Inc.
Delaplane, VA 22025

* *Bike-ways (101 Things to Do with a Bike),* by Lillian and Godfrey Frankel, 1972. 128 pages. $3.50.

Book Informative accounts of how to have fun with a bike, including games, skill exercises, trips, tours, and camping. Included are brief discussions of safety, how to select a bike, parts and accessories, and maintenance. The section of 25 games is especially useful.

Sterling Publishing Company, Inc.
419 Park Avenue South
New York, NY 10016

Bicycling and Bicycle Trails. A Trails and Trail Based Activities Bibliography, 1971. 31 pages. $3.00.

Bibliography

Bibliography of books and articles on various aspects of bicycling. Index is conveniently arranged by topic, with largest number of entries being history, safety, and trails. Somewhat outdated due to the great number of bicycle publications since 1971.

National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22151

** *Bike Tripping*, by Tom Cuthbertson, 1972. 172 pages. $3.00.

Paperback

Lively, informative account of how to take bike trips in terms of safety, the weather, where to go, and equipment to carry. Book also discusses learning to ride and purchasing a bike. Illustrated.

Ten Speed Press
Box 4310
Berkeley, CA 94704

Bicycling for Recreation and Commuting, 1972. 26 pages.

Pamphlet

Simple overview of bicycling safety, trails, and history.

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

* *Bikeway Planning Criteria and Guidelines*, 1972. 171 pages.

Report

Report on the needs for bikeways for the state of California. This interesting study incorporates more information about bicycles than just statistics about width of bike-ways, although such figures are its major focus. Begins with useful historical perspective.

Institute of Transportation and Traffic Engineering
School of Engineering and Applied Science
University of California
Los Angeles, CA

AUDIOVISUAL MATERIALS

National Directory of Safety Films, 1971. 60 pages. $3.50.

Catalogue

Capsule descriptions of safety films that can be rented from the National Safety Council; however, none are evaluated and many are included that are either poor or mediocre. The reader must take pot luck and preview all films ordered before using with students. Most of the films listed below are taken from this catalog.

National Safety Council
425 North Michigan Avenue
Chicago, IL 60611

Bicycle Safety Skills. 11 minutes, color or black and white. 16mm.

Film

Film stresses idea that safe bicycling habits will carry over into adult driving behaviors.

Coronet Instruction Films
65 East Water Street
Chicago, IL 60601

Bicycle Rules of the Road. 11 minutes, color, 16mm.

Film

A dramatic demonstration emphasizes driver reaction time and the stopping distances of both automobiles and bicycles. Staged collision tests, using slow motion photography, forcibly demonstrate what happens when an automobile impacts with a bicycle at 25 and 47 mph.

National Safety Council
425 North Michigan Avenue
Chicago, IL 60611

Bicycle Safety. Color, 35mm.

Film

Illustrates where to learn to ride; what rules to follow when riding during the day, at night, and in the rain; how to prevent tire damage; and how to carry packages on a bike.

National Safety Council
435 North Michigan Avenue
Chicago, IL 60611

Bicycling with Complete Safety. 10 minutes, 16mm.

Film Film on bicycling safety for adults and children.

National Safety Council
425 North Michigan Avenue
Chicago, IL 60611

Championship Bicycle Safety. 13 minutes, color, 16mm.

Film Fast-paced film that relates the cycling skills of the champs to the skills needed in everyday cycling situations, with emphasis on the idea that it takes practice to ride like a pro. Includes clowns riding antique bikes in a local rodeo who demonstrate the need for watchfulness to avoid hazards.

National Safety Council
425 North Michigan Avenue
Chicago, IL 60611

If Bicycles Could Talk. 13 minutes, color, 16mm.

Film Covers all aspects of bicycle safety and maintenance, as well as the role of parents in preparing youngsters for bicycle ownership.

National Safety Council
425 North Michigan Avenue
Chicago, IL 60611

One Got Fat. 17 minutes, color, 16mm.

Film Ten bicycle-riding monkeys are going to the park for a picnic. Each has a personal characteristic that impels him to break a law regarding bicycle safety. As a result, only one arrives at the park.

National Safety Council
425 North Michigan Avenue
Chicago, IL 60611

Two Wheels Toward Safety. 20 minutes, color, 16mm.

Film Film shows how bicycle accidents are reduced through education in a community effort in Nassau County in New York.

National Safety Council
425 North Michigan Avenue
Chicago, IL 60611

You and Your Bicycle. 11 minutes, black and white, 16mm.

Film

The narrator gives tips on proper bicycle care as well as safety rules to follow while riding. Aimed at secondary levels.

National Safety Council
425 North Michigan Avenue
Chicago, IL 60611

PERIODICALS

Periodicals are a rich source of information on the use and purchase of bicycles and bicycle facilities and on the availability and location of additional materials on bicycles. Even general consumer periodicals, like *Consumer Reports* and *Changing Times,* contain in many issues articles on bicycles. It was impossible, however, to provide here a list of relevant articles that have appeared in the recent past in periodicals. Moreover, the subscriber or reader cannot know in advance when a periodical will print an article that will interest him. Despite these drawbacks, many teachers and students will find it useful to subscribe to or read library copies of periodicals in the expectation that they will discover articles or references to additional materials of immediate relevance to their teaching or research efforts. The more specifically a periodical is related to his particular interest, of course, the more likely is the reader to find relevant materials. Teachers and readers can also consult in libraries the *Reader's Guide to Periodical Literature* for past articles about bicycles.

American Bicyclist
461 Eighth Avenue
New York, New York 10001

Bicycle Journal
3339 West Freeway
Fort Worth, Texas 76107

Bicycling
119 Paul Drive, Box 3330
San Rafael, California 94902

Bike World
Post Office Box 366
2536 Middlefield Road
Mountain View, California 94040

Boom in Bikeways
Bicycle Manufacturers Association
1101 Fifteenth Street, N.W.
Washington, DC 20005

League of American Wheelmen Bulletin
19 South Bothwell Street
Palatine, Illinois 60067

Transpo Topics for Consumers
Department of Transportation
Office of the Secretary
Washington, DC 20590

BIBLIOGRAPHY EVALUATION CRITERIA

All teacher and student materials that were located were evaluated along two dimensions: *quality* and *relevance*. Quality was defined to include the following components:

- Provision of creative and detailed classroom activities or learning experiences that go beyond the one- or two-sentence "have the students do *x, y, z*" suggestions
- Development of decision-making skills that may be transferable to other consumer issues
- Attention to affective educational approaches and objectives, not merely cognitive ones
- Emphasis on student initiative and involvement in classroom activities and in the planning of those activities
- A concern-centered approach that predicates learning on the assessment of student concerns and the development and use of classroom activities that initially deal with those concerns
- The provision of a lucid conceptual framework of bicycle consumer education by which teachers can grasp the field and the interrelationships of its components and by which teachers can develop additional activities and units of their own
- A modular, flexible approach that enables teachers to develop activities and units tailored to the needs of their particular students and community
- Provision of accurate factual information
- A nonmoralistic, noninjunctive approach
- Stress on the needs and problems of minority groups
- An interdisciplinary approach to consumer education

Few curriculum materials combined all these quality ingredients. Many included none or a few. In some borderline cases where a teaching material contained some quality ingredients, the authors made a subjective evaluation on whether the material contained *enough* of these elements to warrant referencing in the module.

To be considered relevant, a teaching material had to deal in a significant way with bicycle education from the point of view of, or useful to, a consumer. Teaching materials were excluded from the module when their relevance was extremely limited or nonexistent because

- Only a small section of the material dealt with bicycle consumer issues. However, such materials were included when a subsection was of high caliber, dealt with an important aspect of bicycles not covered elsewhere, or was part of an easily accessible and inexpensive unit.
- The material was extremely specific--it dealt with too narrow an aspect of an issue to be useful to teachers or students except in highly specialized courses or units.
- The material was designed for a highly specialized audience.
- The material was oriented strictly toward career education.
- The material was outdated.
- The material contained information that applied primarily or significantly to a local situation.
- The material was not distributed out of state.

FEDERAL AGENCIES WITH RESPONSIBILITY OR INTEREST IN BICYCLING

You may write to the following government agencies for bicycling information:

Federal Highway Administration
U.S. Department of Transportation
Washington, DC 20590

National Highway Traffic Safety Administration
U.S. Department of Transportation
Washington, DC 20590

Bureau of Outdoor Recreation
U.S. Department of the Interior
Washington, DC 20240

National Park Service
U.S. Department of the Interior
Washington, DC 20240

Environmental Protection Agency
401 M Street, S.W.
Washington, DC 20460

4-H Bicycle Program
U.S. Department of Agriculture
Washington, DC 20250

U.S. Consumer Product Safety Commission
5401 Westbard Avenue
Washington, DC 20207

Purchase Considerations*

Potential bicycle purchasers can base their selection upon their riding proficiency, the intended use of the bicycle, the amount of use anticipated, the presence or absence of safety features, the ease of use, good workmanship, and the availability of replacement parts and repair service.

The following checklist may be of help.

	Brand A	*Brand B*	*Brand C*	*Brand D*
Frame Styles				
Lightweight				
Medium weight				
Heavy duty				
Folding				
Girls/boys				
Frame Size				
Handlebar Types				
Drop style				
High-rise				
Tourist				
Brakes				
Caliper, front				
Caliper, rear				
Caliper, front/rear				
Coaster				
Seat Styles				
Banana				
Bucket				
Racer				
Mattress				
Touring				

	Brand A	*Brand B*	*Brand C*	*Brand D*
Pedal Styles				
Flat				
Trap				
Gears/Ratios				
Constant				
Shifting:				
3-speed				
5-speed				
10-speed				
15-speed				
Wheel Sizes				
Front				
Rear				
Tire Types				
Thinwall/racer				
Touring				
Tractor				
Slicks				
Fenders				
Full				
Partial				
None				
Weight/Total				
Special Equipment Options				

SPIRIT MASTER #1: FOR USE WITH ACTIVITIES #3 AND #16

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*Text and chart are from *Bicycle Safety Curriculum Guide* (University of the State of New York, State Education Department, Division of General Education).

SPIRIT MASTER #2: FOR USE WITH ACTIVITY #9

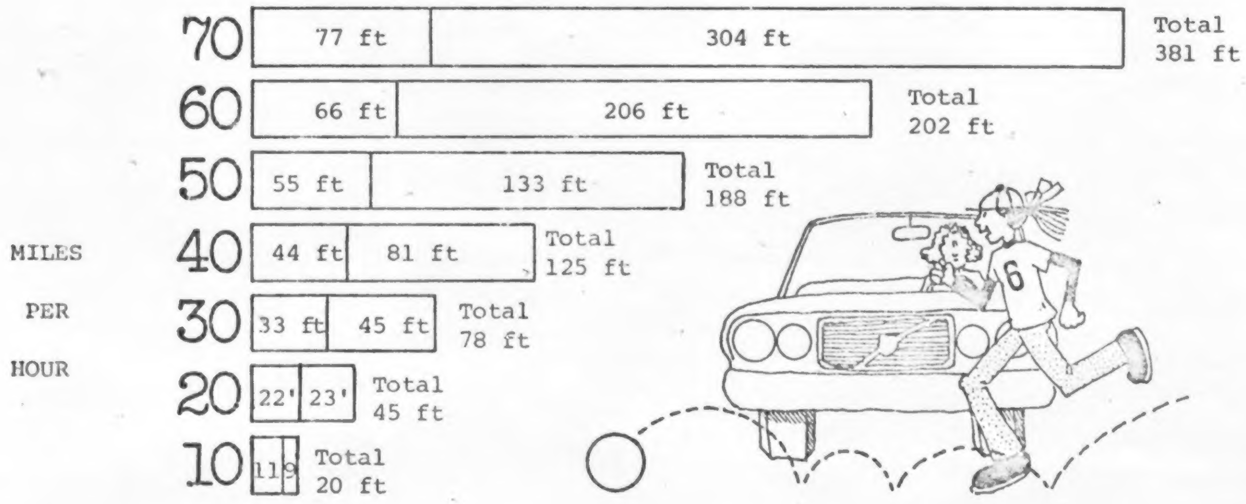
Bicycle Experience Poll

(Circle correct answer)

1. Are you a male or a female? Male Female
2. Have you ever ridden a bicycle? Yes No
3. If so, how many times in the last month?
   Once 2-4 5-10 11-20 Over 20 times
4. If you ride, do you ride with other people?
   Never Sometimes Usually Always
5. Have you ever ridden "sidesaddle"? Never Occasionally Often
6. Have you ever had someone ride on the handlebars of your bike?
   Never Occasionally Often
7. If you own a bicycle, does it have a reflector? Yes No
   Does it have a light? Yes No
8. Have you ever ridden a bicycle at night without lights?
   Never Occasionally Often
9. If you ride at night, do you wear light-colored clothing?
   Never Occasionally Often
10. Do you wear bicycle clips? Yes No
11. Have you ever ridden while high on alcohol or drugs?
    Never Occasionally Often
12. Do you usually ride with the traffic or into it?
    Into it With it It varies
13. Do you stop for red lights? Never Sometimes Always
    Do you stop for stop signs? Never Sometimes Always
14. When you make a turn, do you signal which way you are going to turn?
    Never Occasionally Often
15. Do you consider yourself a safe bicycle rider?
    Very safe Safe Somewhat safe Unsafe
16. Have you ever been in a bike accident where you were hurt?
    Never Once 1-4 times More than 4 times
17. If you have been in a bike accident, what happened? *(Circle as many as apply.)*
    Hit by a car...Hit by another bicycle...Hit another person, car, or bicycle...something else
18. If you have been in a bike accident, what caused it? *(Circle all that apply.)*
    Riding too fast...Didn't stop for a red light or stop sign...Didn't signal for a turn...Riding in the middle of the street...It was the other person's fault...Some other reason *(say what it was)*

SPIRIT MASTER #3: FOR USE WITH ACTIVITY #11

Minimum Stopping Distances



SPIRIT MASTER #4: FOR USE WITH ACTIVITY #21

Instructions for Playing Bicycle Parts Game

1. Cut out the cards and paste them on cardboard or 3" x 5" cards.

2. Shuffle cards and deal them to players, five cards to a player. Leave rest of deck face down on the table.

3. Game is then played like gin rummy. Each player draws one card from the deck and decides whether he wants to keep it. If he keeps it, he must discard another card. If not, he discards the card he picked up. Discarded cards are placed face up, one next to the other.

4. If a player wants, he may take his turn by picking up a card from the discarded series of cards. However, in doing so, he must also take into his hand all those cards that were discarded after the one he wants. When picking up a discarded card or cards, the player must still discard one card before the next player takes his turn.

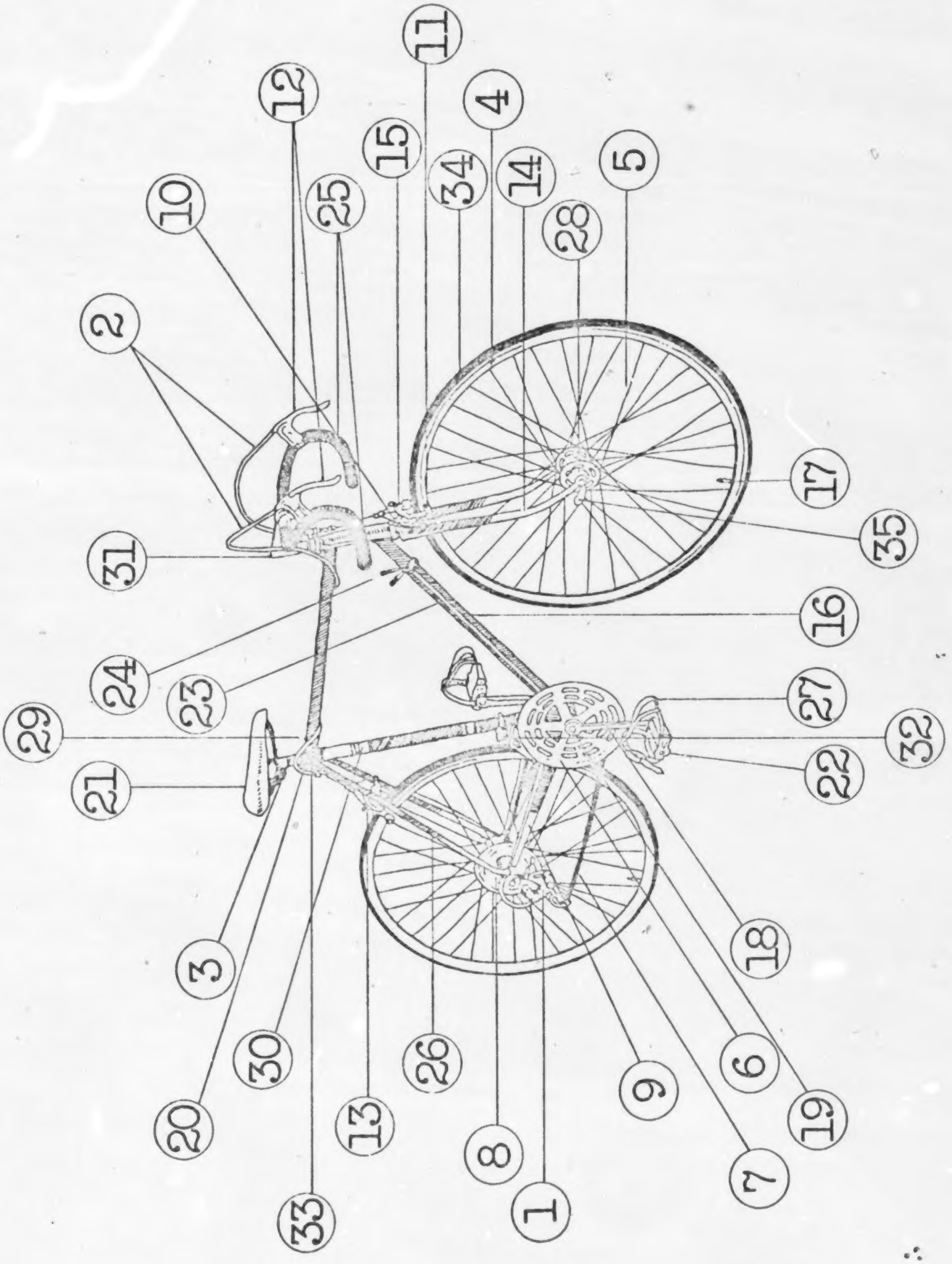
5. The object of the game is to meld (combine) cards in series of three that correspond to three numbers in a row on the bicycle diagram. In order to do this, the player must be able to identify the part described on his cards on the diagram. For example, if a player has cards for the Rear Derailleur, Brake Cable, and Seat Post (Numbers 1, 2, and 3), he may meld them.

6. Whenever a player melds a series of three cards, he earns three points. However, his meld may be challenged by any other player if another player feels the parts are not what the melder thought they were. Such a challenge must be made before the next player takes his turn. Successful challenges earn the challenger 2 points; incorrect challenges earn the melder an additional 2 points, while the challenger loses 2 points. You can arbitrate challenges.

7. There are ten cards with *Write in Your Own Part* on them. Players who draw these cards may write in any bicycle part of their choice, but they must do so immediately before the next player takes his turn. Any meld with one of these cards is worth four points, instead of the usual three.

8. Game play ends when all cards are used up (an unlikely event) or when one player has melded all his cards. At this time, players count up their points. Winner is player with highest number of points.

SPIRIT MASTER #5: FOR USE WITH ACTIVITY #21



SPIRIT MASTER #6: FOR USE WITH ACTIVITY #24

Bicycle Inspection Check Chart[a]

Item Inspected	*Lubricate*	*Tighten*	*Adjust*	*Repair/ Replace*	*Approved*
Frame tubes	▨	▨	▨		
Fork blades true	▨	▨	▨		
Handlebar tight	▨				
Extension tight	▨				
Grips tight	▨				
Bar height, angle	▨				
Saddle height, angle	▨				
Seat post	▨				
Fit, bicycle	▨				
Steering head					
Crank bearings					
Cranks, cotters	▨		▨		
Drive sprocket	▨		▨		
Driven sprocket	▨				
Chain					
Pedals (complete)	▨		▨		
Pedal bearings		▨			
Mudguards, braces	▨				
Carriers	▨				
Cleanliness 100%	▨	▨			
Wheel nuts--F & R	▨		▨		
Wheel bearings		▨			
Hub,rear bearings		▨			
Brake operation					
Tire condition--F & R	▨				
Rims--Front & Rear	▨	▨			
Spokes--Front & Rear	▨				
Tire inflation	▨	▨		▨	
Hand brakes					
Brake & gear cables					
Brake & gear levers					
Gear shifter					
Speedometer					
Generator (batteries)					
Headlight	▨				
Tail light	▨				
Reflector	▨				
Signal Device	▨				

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[a] From *Bicycle Safety Tests*, Bicycle Institute of America, New York, page 8.